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THE MINING CONGRESS JOURNAL

JANUARY, 1918

VOL. IV

SAFETY-EFFICIENCY-CONSERVATION

No. 1



Harris & Ewing Photo

EMMETT D. BOYLE

Governor of Nevada with whom the American Mining Congress is cooperating in an effort to stimulate silver production so as to enable the Government to meet its requirements in the settlement of foreign trade balances. (See page 19.)

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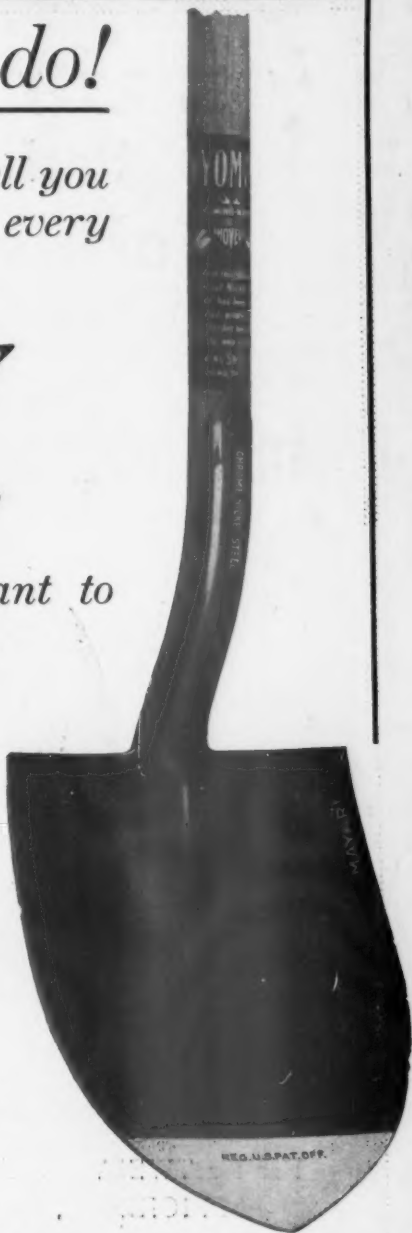
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JANUARY

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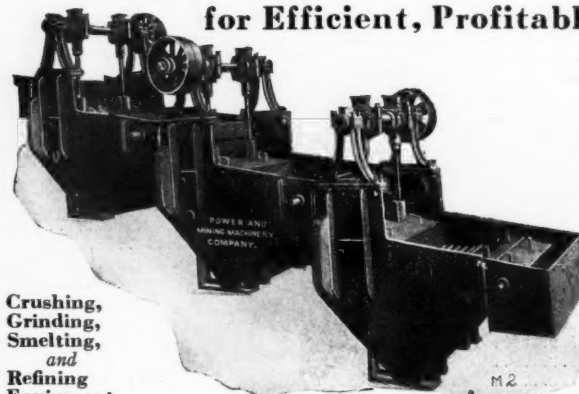
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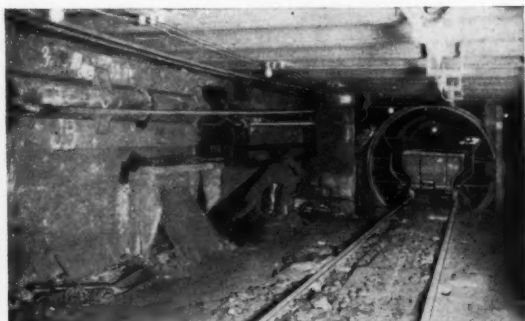
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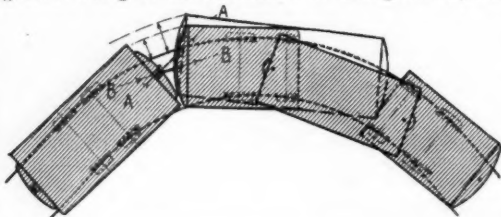


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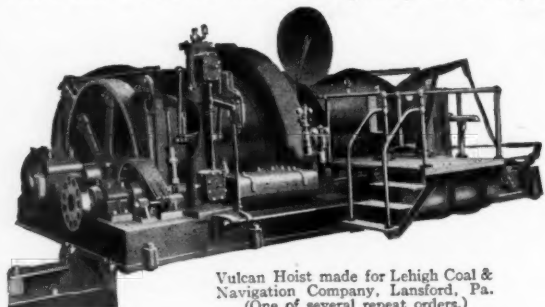
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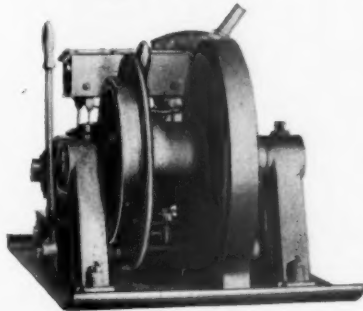
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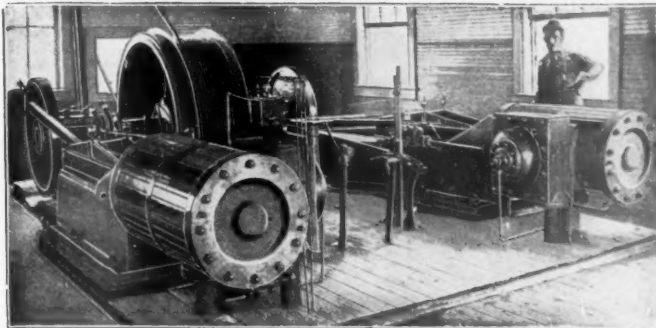
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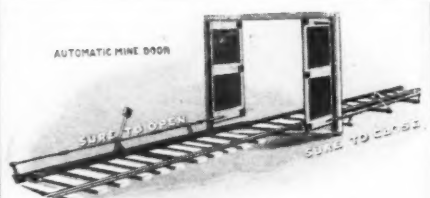
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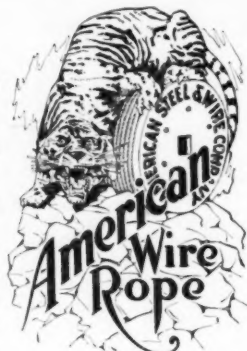
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THE MINING CONGRESS JOURNAL

Official Organ of the American Mining Congress

A HAPPY NEW YEAR

THE MINING CONGRESS JOURNAL extends to its readers and friends its best wishes for a happy and prosperous new year.

It desires also to voice its appreciation of the splendid cooperation of its readers and the machinery and supply people who have made its success possible.

THE JOURNAL has become a powerful factor in the work of the organization in creating that public opinion which is absolutely essential to the best development of the mining industry. The larger THE JOURNAL's income, the greater its influence and usefulness.

THE JOURNAL is the direct result of cooperation. Our friends have shown what can be done. We thank each and all for their hearty cooperation, their interest and loyalty, and we pledge in return our very best effort to secure for their industry the highest possible development.

DOLLAR SILVER

In order to conserve the gold supply of the United States by utilizing silver as much as possible in the settlement of adverse trade balances with Oriental countries, the Federal Reserve Board has given careful consideration to various aspects of the silver question. The earliest estimates indicate that the silver output of the world for 1917 was 156,000,000 ounces, which is much below the production of recent years. To meet the requirements of the United States in the settlement of its trade balances, it seems

necessary to make use of those supplies in the United States Treasury which are held as security for the Federal silver certificates.

Legislation is required to make this silver available. The retirement of these silver certificates calls for the issuance of Federal reserve bank notes or other form of paper money if contraction is to be avoided. Recognizing this as an expedient to take care of the extraordinary demands of the war, the Government will restore the Federal silver from the current production as it is able to do so.

Facts were given to the Federal Reserve Board by a Western delegation of mining men, headed by Gov. Emmet D. Boyle, of Nevada, which they believe justify a price of \$1 an ounce for all silver offered.

In speaking of the problem here discussed, Governor Boyle said:

There will probably be legislation proposed providing for the withdrawal by the Government from the Treasury of such silver as it needs for immediate use and for the fixing of a price of \$1 per ounce on all silver that may be tendered for sale to the United States mints and assay offices, from which the Government can take care of the needs of the Allies, of the arts, its own needs for subsidiary coinage, and to restore to the Treasury sufficient bullion to permit the reissue of the silver certificates temporarily withdrawn from circulation.

SENATOR NEWLANDS

The death of Senator Francis G. Newlands, of Nevada, is a distinct loss to the nation. Senator Newlands was a man of vision, of constructive ideas, and pos-

sessed with a patience which enabled him to work continuously, year after year, for the accomplishment of some constructive purpose which required continuous agitation and discussion in order that the public mind could be brought to a proper appreciation of the wisdom of his view.

WAR EXCESS PROFITS TAX

December was a busy month at the headquarters of the American Mining Congress. Two important conferences were held, and many prominent mining men were in Washington. The two subjects considered were the war excess profits tax and the stabilization of the price of silver. The former of these was under consideration for days, and is still occupying the attention of a committee of fourteen, representing the various branches of the mining, oil, and gas industries.

The committee of fourteen consists of the following:

Representing oil and gas—John J. Shea, Oklahoma, and T. A. Dines, Denver. Coal—A. G. Dickson, Pennsylvania, and Herbert Pope, Chicago. Western lead—Ravenel Macbeth, Idaho, and A. G. Mackenzie, Utah. Gold and silver—Gov. Emmet D. Boyle, Nevada, and Albert Burch, California. Lead and zinc—A. Scott Thompson, Oklahoma, and Victor Rakowsky, Boston. Copper—Paul Armitage, New York City, and Archibald Douglas, Arizona.

The visiting mining men also had hearings with members of Congress and the War Tax Advisory Board of the Revenue Commissioner. Among the points suggested to the War Tax Advisory Committee are the following:

1. That mineral, oil, and gas leases are tangible property, and should be so construed.
2. That individuals engaged in prospecting for oil or minerals should be considered as "engaged in business having no invested capital" or "merely nominal capital."
3. That surplus earned during the year should be construed as invested capital from the time at which such surplus is actually employed in the business.
4. That under Section 210 of the act the commissioner has power to determine the proportion of income of an oil or mining

business which shall be considered as excess profits, without requiring each taxpayer to determine his or its invested capital.

5. That the proceeds from the sale by a corporation of its own capital stock to raise money for development and operation expenses should not be held as the income.

The committee of fourteen proposed the following as an amendment to the excess profits law:

Be it enacted by the Senate and the House of Representatives of the United States of America, in Congress assembled, that Section 207 of Title 2 of the act entitled "An act to provide the revenue to defray war expenses and for other purposes," approved October 3, 1917, be amended by the addition of a new subdivision "C" to Section 207, reading as follows:

"That in the case of mines, oil, and gas wells the invested capital, at the option of the taxpayer, shall be (1) the average pre-war net income capitalized at 8 per cent, and (2) paid in or earned surplus and undivided profits used or employed in the business since the pre-war period, exclusive of undivided profits earned during the taxable year. Provided, That in the case of mines, oil and gas wells having no pre-war net income or acquired since the pre-war period, the 'invested capital,' at the option of the taxpayer, shall be (1) the net income for the year 1917 capitalized at 12 per cent, and (2) paid-in or earned surplus and undivided profits used or employed in the business subsequent to the year 1917, exclusive of undivided profits earned during the taxable year."

This proposed amendment has been submitted to various interests for criticism and suggestion, and will be taken up by the committee on January 7 for further discussion and final determination as to the exact form of amendment which the committee will ask Congress to consider.

TREASURY STOCK

Organizers of corporations whose "full-paid" treasury stock is sold for the purpose of raising capital will be relieved by a recent ruling of the Revenue Commissioner. The commissioner had ruled that income from sales of "full-paid" treasury stock is income within the scope of the income tax law.

This caused alarm among representatives of corporations so affected, but it is now understood that Treasury officials

agree that only so much as the amount by which such receipts exceed the value of the treasury stock at the time it was donated to the corporation is taxable as income.

1917 AND THE BITUMINOUS COAL INDUSTRY

The year which has just come to a close was an extremely eventful year for the mining industry. The first half of the year was an era of unprecedentedly high prices for practically all of the mineral elements. A good part of 1916, and five years prior thereto, bituminous coal had been sold below the actual cost of production. The writer estimates that during that six-year period the actual loss to bituminous coal operators was approximately a quarter of a billion dollars. During this period the production and the demand for coal had increased approximately 10 per cent yearly, while the productive capacity during the greater part of this time increased more rapidly than the demand. A serious situation confronted the industry, and this manifested itself in a gradual decrease in the facilities for production.

During these same years, the transportation agencies of the country gradually allowed their equipment to deteriorate so that the increased demand for transportation occasioned by war conditions placed so great a burden upon the railroad companies that the increased demand for coal could not be met. There was a falling off in productive capacity, and a falling off in the power to deliver coal from the mines to the consumer. When this shortage in supply became apparent it caused an enormous increase in the price of the coal which was not sold under contract, otherwise known as "free" coal. Approximately 90 per cent of the coal supply was under contract at very low prices, in many cases at less than the usual cost of production, and much less than the cost when the increased expense of mining occasioned by war conditions had to be met. During the first half of the year those companies having any considerable amount of "free" coal made extravagant profits, while those companies with their coal

largely under contract, notwithstanding the high "market" prices for coal, were losing in a similar ratio. Gradually as contracts expired at the lower prices, contracts were made at largely increased prices.

The Government needed coal for its Navy. Its contract was expiring. It had been buying coal in the Pocahontas field at a few cents over \$1 per ton; the market at that time was taking all of the Pocahontas production at better than \$6 per ton. The operators in the Pocahontas coal field were under indictment for violation of the Sherman law, and their trial was rapidly approaching in the Federal courts.

Mr. Francis S. Peabody, who had been made chairman of the Coal Committee of the Council of National Defense, accepted the compromise offer of the Pocahontas operators to furnish the Navy with coal at \$2.85 per ton, less than one-half the then market price. The Secretary of the Navy, with his usual sagacity, refused this offer. Mr. Peabody's committee called the bituminous coal operators together and an agreement was reached by which \$3 was to become the maximum price for bituminous coal—a price in excess of the cost of production at some points, and high enough to induce production at all points in the central productive fields.

It was believed that this price would so stimulate production in the great competitive field that the price would be lowered to a point slightly above the cost of production. The President of the United States apparently believing otherwise fixed a maximum price of \$2 per ton in the fields which produced the greater part of the country's coal. This price was below the cost of production in many fields, and notwithstanding the fact that many operators continued to operate their mines at a loss for patriotic reasons, others less patriotic and those whose financial conditions made impossible a continuation of operation closed their mines, and instead of an increase of production sufficient to meet the increased demand there was an actual falling off in production of bituminous coal.

During this period in all parts of the country there was a demand on the part of the workers for increased compensation, and coal production was stopped by strikes more frequently than at any time in our history. The prices fixed by the President were increased by the Fuel Administration, but not until several weeks of delay had been occasioned in the effort to present to Dr. Garfield figures upon which he might base intelligent conclusions.

In the midst of all these difficulties the war excess profits tax provision of the income tax bill was passed by Congress, so worded as to put an undue and unjust burden upon those industries which exhaust themselves by production, and falling with particular weight upon those branches of the mining industry which made no profits during the pre-war period.

Notwithstanding the difficulties of previous years, the bituminous operators of the country will face the "Happy New Year" with more relish than usual because of the fact that 1917 and its tribulations have passed into history.

MINERAL LEASING

BILL PASSES SENATE

Mineral land leasing on the public domain has occupied the attention of the United States Senate since Congress re-assembled. The Walsh bill passed the Senate by a vote of 37 to 32. This bill represents a compromise between the two extremes of that body. The particular attention of the Senators was directed to the provisions dealing with the leasing of oil lands, and this matter has held the attention of operators in the public land States.

It is by no means certain that the bill as it stands will become a law, since it is likely to meet with opposition in the House of Representatives. The Ferris bill on the same subject, which has twice passed the House, has been reintroduced and it may prevail in the House over the Walsh bill.

On the last day of the consideration of the mineral land leasing bill, the Senate adopted a number of vital changes. Ad-

ditional discretion was given to the Secretary of the Interior. The more important changes are as follows:

Section 17 was changed to provide that the rights of previous claimants should be effective from and after January 1, 1918, instead of August 1, 1917. Where the previous language in Section 17 speaks of "diligent prosecution of work," the word "diligent" has been removed and the phrase "without unreasonable delay" inserted. This scarcely affects the significance of the amendment but it changes phraseology which has already been passed upon by the United States Circuit Court of Appeals at St. Louis in the well known Grass Creek Case.

In the issuance of permits to prospect wild cat territory the Secretary of the Interior has discretion to determine whether the permit is on a previously known oil structure. The holder of a prospecting permit shall have the preference right to leases to cover territory upon which his permit is located.

Holders of oil lands in Alaska prior to the withdrawal order who have expended not less than \$500 are entitled to the benefits to Section 16. This figure is reduced from \$1,000.

A significant amendment is that which provides that no further withdrawals of mineral lands shall be made except by Act of Congress.

The Senate adopted an amendment to provide that a number of patentees or lessees may combine to construct pipe lines as a common carrier for joint service under the approval of the Secretary of the Interior. This does away with one of the important objections which were raised to the bill.

COMBINATIONS UNDER

GOVERNMENT SUPERVISION

Only a short time before Senator Newland's death, the writer was privileged to sit at the table with him at a dinner given especially for the discussion of methods through which the Government might avail itself of sufficient silver bullion to care for its obligations to creditor nations without lifting the embargo upon gold exportation. Senator Newlands

said to the writer: "Do you remember when you came before our committee urging legislation which would permit business combinations under Government supervision? Recent events have demonstrated the wisdom of your position and the necessity of permitting more effective cooperation in business affairs." The writer believed, and still believes, that business units should be permitted to pool their forces for higher efficiency and that a better conservation and utilization of resources can be effected through such coordination. Such combinations could not be safely permitted except under Government supervision. With proper constructive power, the Federal Trade Commission could have provided for a cooperation which might have prevented the need for Government interference with the operation of the established business agencies which have heretofore fully met public requirements.

THE GOVERNMENT

AND ITS RAILROADS

The taking over of the management of the railroads by the Government appears to have been a necessary step under the existing conditions. The writer believes these conditions to have been abnormal and unnecessary. Whether this belief is well founded or not, there can be no question that the congestion of traffic upon the roads of the country and the failure to transport fuel to points where its use is an absolute necessity for industrial and domestic purposes required a perfect coordination of those forces through which the prime essential of all progress, transportation, should be made available to meet existing needs. For some years past railroad betterments have not kept pace with the increasing demand for transportation. It is claimed that the failure to keep pace with industrial progress was brought about by too much Government supervision, by the making of rules which prevented the railroad business from being profitable, resulting in a depression of stocks and the inability of the roads to raise the money necessary to keep their equipment at maximum efficiency. THE MINING CONGRESS

JOURNAL regrets the conditions which have made the Government control a necessity, but it believes that such management is absolutely necessary at this time, and it hopes that through a more complete coordination of forces new impetus may be given to industrial enterprises and that we may be better prepared to meet the great war requirements of the day.

CAPITAL AND PRODUCTION

No theories as to possible improvements in society can change the fact that private capital furnishes the mechanism of wealth production. The yield of mining and industrial plants is a response to the incentive of private capital to pursue its normal functions. When the Government needs minerals it must rely upon privately owned mines and oil wells to provide for its requirements. One may say that the Government can confiscate the mines or commandeer them for temporary purposes, but the one who says this must first propose the means whereby a government engaged in a great war can successfully devote itself to industrial as well as military affairs. It is task enough to man the battlefields of Europe without being called upon to man the industries. The incentives of private capital *must be trusted*.

The decision of the President to assume the direction of the railways is hardly to be accepted as a case of Government necessity, primarily. The necessity was rather upon the side of the railways, which have been unable to finance themselves up to the demands of traffic. This condition threw the burden of their management upon more powerful shoulders, namely, those of the whole people. The private control of the railways would have been better for the Government if the railway managements had been able to meet the requirements of the times.

Taking it for granted, therefore, that the private management of mines and other industrial plants is best for the Government, we need not look for any confiscation of such properties. On the contrary, we may expect the Government to use an excess of caution in preserving the activities of industry and encourag-

ing its efficiency. Great burdens are bound to fall upon the patriotism of the owners of mining and industrial plants, as these naturally expect, but it is to be remembered that capital acts in masses, and it does not, in spite of popular impression, possess intelligence of force. It functions in a certain mechanical way, and it responds to discouragement without any perceptible intelligence of individual action. This may be better understood by making the comparison with labor. Individual laborers may act with perceptible intelligence, but labor in the mass, considered as a blind force, is a brutal phenomenon.

Accordingly, the officers of the Government upon whom falls the duty of overseeing industry during a national crisis must be constantly warned against oppression and revolution. Beyond a certain point, we shall have confiscation of capital, if it is possible for the burdens of war to become great enough, and this will be certain to react upon the Government itself. It is to be hoped that it will never be necessary to destroy the traditions of business in an effort to finance the war. The United States is rich enough to provide a huge income for military purposes simply from the normal annual increase. Let the fixing of the burden be equitable and without taint of revolution.

ESSENTIAL INDUSTRIES

The one hundred million people who remain at home must earn a living for themselves and also create a surplus from which the fighters at the front must be supplied with army necessities. To stop the manufacture of Christmas toys might liberate an infinitesimal part of the nation's productive capacity for use in some line of production apparently more necessary in the conduct of the war. It would, however, take from a calling in which certain tradesmen are efficient and supply other workshops with inefficient workmen. It might take from certain tradesmen the means through which they may accumulate such earnings as will enable them to pay taxes. Taxes must be

levied against property; income taxes must come from income; the Government must not cripple those factors from which it expects to get its support. Would it be wise to destroy the Christmas spirit, which is in tune with the keenest loyalty and that spirit of self-sacrifice upon which this war is being waged? THE MINING CONGRESS JOURNAL does not believe that it is within the outlook of any man or set of men to draw accurate and definite lines of demarcation between the essential and the nonessential industries. It may be that business cannot now be conducted as usual, but it is true that the more nearly we can keep the industrial power of the nation in its accustomed channels and at its greatest efficiency, the more easy will it be to meet governmental requirements. To close up certain industries because thought to be nonessential will so disturb the body politic that it will fail to function properly at the more important points.

GOLD PRODUCTION

AND THE WAR

A considerable agitation has been developed throughout the West because of a rumor that the Administration was about to declare the production of gold a nonessential industry; at least to declare that other industries were more essential and to divert the distribution of explosives to other channels. This rumor had no foundation in fact, but it does call attention to the importance of gold and the increasing importance as war expenditures require an expansion of currency. The governments of the world have recognized the importance of gold by the issuance of embargoes upon its exportation.

THE MINING CONGRESS JOURNAL has frequently called attention to the increasing burden upon gold production caused by the increasing costs of labor, machinery, and supplies. The value of gold is fixed; as production costs increase, gold producing profits decrease. The gold production of the world is rapidly decreasing. The circulating medium of the

world, based upon gold values, is increasing with alarming rapidity. Gold production cannot possibly keep pace with the increased credits which it is required to support. It is no time to discourage the production of gold, unless we can adjust our business to a basis of depreciated currency. In 1864 one dollar in gold was worth \$2.85 in currency; in 1873 one dollar in gold was worth \$1.19 in currency; from 1860 until 1880 gold was at a premium. In other words, our currency was depreciated. This premium continually decreased until our gold reserves were in a proper ratio to the credit money of the nation. The United States has been fortunate enough to almost double its gold reserves during the past few years. Approximately speaking, we have increased our gold supply from one and three-quarter billions to three and one-half billions. This was the nation's net profit from the war while we were slackers. Now that we have taken our proper place in the ranks, we must hereafter bear our share of the burden. This means increasing expenditures, which must continually increase the burden of credits which gold must maintain.

This is no time to discourage the production of gold. It is a time in which every possible governmental agency looking to the stimulation of gold production should make its best effort.

We must realize the necessity of keeping a gold reserve in sufficient amount to support the continually increasing amount of currency which the enormous increase in business transactions make necessary. To interfere with gold production would be worse than folly.

PRICES AND PRODUCTION

Every day's experience adds to the justification of the course pursued by the Committee on Coal Production of the Council of National Defense, of which Mr. Francis S. Peabody, of Chicago, was chairman. Every day's experience brings increasing proof of the foolishness of those upon whose advice the Peabody program was destroyed and a price fixed for coal less than the cost of production

at a considerable number of the mines of the country. The coal famine with which the country is now and has been suffering is the direct, the natural, and the almost inevitable result of the effort to make price more important than production. It is true that the price fixed by the Administration which the Fuel Administration was called upon to make effective was sufficient to leave a margin of profit to the producers of approximately 75 per cent of the coal of the country. It is equally true that the \$2 price was not sufficient to enable the producers of the remaining 25 per cent to operate at a profit. The fuel needs of the country called for an increased annual production of not less than 50,000,000 tons. This increase could not be hoped for except as the result of a high price, the only inducement which ever justified increased development and production. The destruction of this incentive has induced confusion, want, and suffering, and the end is not yet.

OIL SHALE LOCATIONS

Interest in the oil-bearing shales of western Colorado and eastern Utah has caused some prospectors to inquire concerning the method of locating claims under the public land laws. While the matter is not wholly free from doubt and possible exceptions, it is probable that the placer law generally applies in such cases. The statute of 1897 says:

Any person authorized to enter lands under the mining laws of the United States may enter and obtain patent to lands containing petroleum or other mineral oils, and chiefly valuable therefor, under the provisions of the laws relating to placer mineral claims.

The practice of locating oil lands as placers existed without question until 1896, when the Secretary of the Interior decided against it. Congress, therefore, in 1897, adopted the statute confirming the previous practice. Apparently there seems to be no doubt of the right of the locator of oil shale lands to claim patent under the placer law, but there are certain considerations which may alter the case.

Decisions of the courts in the matter of locating asphaltum are the nearest approach to any adjudication of the subject, although they are not complete. These hinge upon the accepted definitions of lodes and the reasonings of the courts concerning the geological structure of asphaltum deposits. In a classic case, entitled *Webb vs. the American Asphaltum Company*, it was the judgment of the Circuit Court of Appeals, Eighth District, that asphaltum, varying in its consistency from a liquid to a semi-liquid condition, may be located as petroleum, but that when it assumes the solid form and is found in a vein or lode it cannot be located under the petroleum placer statute. If Congress had intended to include veins of asphaltum in place, the court held, it would have so stated in the act of 1897. Judge Sanborn wrote the decision.

Inasmuch as oil shales have not long been considered in the United States as a source of petroleum, the courts have not had occasion to pass upon this question.

The chief element of doubt in the case of oil-bearing shale is whether the location is based upon the oil it contains or upon the shale. If the location contemplates the mining of the shale for its oil content, one may well reason that its solid form furnishes an analogy with the condition of solid asphalt in the shape of a vein or lode. Residual bodies of wax or asphalt deposited in fissures traversing a body of shale should, according to the asphalt case already cited, be held to take precedence over all placer rights. On the other hand, if the oil is regarded as a liquid content of the shale, and its recovery is known to be in liquid form, it falls within the purview of the 1897 statute.

PROMOTION OF EXPORT TRADE

What is familiarly known as the Webb bill, intended to promote export trade, passed the Senate December 12 with a few slight verbal amendments. This bill had already passed the House of Repre-

sentatives, and a conference committee was appointed by the Senate, consisting of Senators Pomerene, Robinson and Cummins.

The Webb bill was discussed at the New York meeting of the members of the American Mining Congress, which has gone on record as favoring the adoption of this measure. It provides that the Sherman act shall not be construed to prohibit any association or combination formed for the sole purpose of engaging in export trade, provided that such association or combination does not operate to restrain the trade of any domestic competitor or enter into any agreement or understanding or conspiracy, the natural effect of which enhances or depresses prices within the United States.

The bill permits the acquisition by any corporation of any part of the stock or capital of any other corporation organized solely for the purpose of engaging in export trade, unless the effect of such ownership may be to restrain trade or lessen competition in the United States.

Combinations so engaged in export trade fall under the supervision of and must report to the Federal Trade Commission, and the commission may bring action to cause such combinations to change their methods upon showing that their conduct does not comply with the intent of the act.

MORIARTY GIVEN WIDE POWER BY THE FUEL ADMINISTRATOR

The railroad situation in the country with particular reference to coal transportation was the subject of a conference December 15, between United States Fuel Administrator Harry A. Garfield and A. W. Thompson, chairman of the Committee of operating managers of eastern railroads with headquarters in Pittsburgh.

One result of the presence in Washington of Chairman Thompson and of his recommendations was announcement of the appointment by the Fuel Administration of C. R. Moriarty of Cleveland as the Fuel Administration's representative to exercise such powers and authority as may be necessary to enable him to perform all of the duties of general director of the coal shippers terminal pool association.

The credentials given to Mr. Moriarty provide that he shall work under the direction of Federal Fuel Administrators Homer Johnson of Ohio, and W. K. Prudden of Michigan.

COPPER PRODUCTION INCREASES OVER 1916

**Year Just Closed Saw an Output of Red Metal
Valued at \$510,000,000**

The production of copper in 1917 was slightly less than in 1916, according to preliminary figures and estimates collected by B. S. Butler of the United States Geological Survey, Department of the Interior, from all plants that make blister copper from domestic ores or that produce refined copper. At an average price of about 27 cents a pound the output for 1917 has a value of \$510,000,000, as against values of \$475,000,000 for 1916 and \$190,000,000 for 1913.

The figures showing the smelter production from domestic ores represent the actual output of most of the companies for 11 months and the estimated output for December. A few companies gave no figures for November but furnished estimates of the combined output of November and December. The production of blister and Lake copper from domestic ores was 1,890,000,000 pounds in 1917, against 1,928,000,000 pounds in 1916 and 1,224,000,000 pounds in 1913.

The output of refined copper (electrolytic, Lake, casting, and pig) from primary sources, domestic and foreign, for 1917, is estimated at 2,362,000,000 pounds, compared with 2,259,000,000 pounds for 1916 and 1,615,000,000 pounds for 1913.

FOREIGN TRADE AND DOMESTIC CONSUMPTION

According to the Bureau of Foreign and Domestic Commerce, the imports of unmanufactured copper of all forms for the first 10 months of 1917 amounted to 460,780,000 pounds, as against 397,594,000 pounds for the first 10 months of 1916. The imports for the year 1916 were 462,335,000 pounds.

The exports of pigs, ingots, bars, plates, sheets, rods, wire and like copper products for the first 10 months of 1917, as determined by the Bureau of Foreign and Domestic Commerce, amounted to 953,876,000 pounds; the exports for the first 10 months of 1916 were 655,473,000 pounds. Similar exports for the year 1916 were 784,006,000 pounds.

At the beginning of 1917 about 128,000,000 pounds of refined copper was in stock in the United States. By adding this quantity to the refinery output of the year it will be seen that the total available supply of refined copper, exclusive of secondary copper, was about 2,490,000,000 pounds. By subtracting from this quantity the exports for the first 10 months and the estimated exports for the last 2 months, and assuming no change in stocks, it will be seen that the supply available for domestic consumption in 1917 was materially less than the 1,430,000,000 pounds available in 1916.

The average monthly quoted prices of copper in 1916 and 1917 were almost exactly the same, 27.2 cents a pound. The average quoted price in 1916 was about 2.5 cents more than the actual average price received. The actual price received in 1917 was probably nearer the average quoted price.

RECORD BY STATES

Arizona produced 687,800,000 pounds, a slight decrease from the production in 1916, which was 694,800,000 pounds.

Montana produced 278,000,000 pounds, as against 352,000,000 pounds in 1916.

Michigan produced 275,000,000 pounds an increase over the 269,794,000 pounds produced in 1916.

Utah produced 245,000,000 pounds, as compared with 232,000,000 pounds in 1916.

Nevada produced 110,000,000 pounds, an increase over the 100,800,000 pounds produced in 1916.

Alaska, with a production of about 87,500,000 pounds, showed a large decrease from the previous year.

New Mexico increased its production to 104,500,000 pounds from 79,800,000 pounds in 1916.

The production of California was considerably above the 43,400,000 pounds produced in 1916.

The production in Tennessee, did not differ greatly from the production in 1916 which was 14,500,000 pounds.

Dealers Required to Cooperate

The present is not a time when coal dealers can run their business as they see fit and cooperation with the United States Fuel Administration will be required, Dr. Garfield announces. If coal dealers in any part of the United States refuse to cooperate with the Federal Fuel Administration steps will be taken to divert coal to dealers who will cooperate. This policy of the United States Fuel Administration was made known in a telegram to a firm of coal dealers in a Pennsylvania city.

The telegram to the coal dealers who had been reported as refusing to cooperate with the Fuel Administration was as follows:

"Administration is advised you refuse to cooperate with Federal Fuel Administrator. If this is the case administration will take steps to have all coal shipped to you diverted to other local dealers who are willing to cooperate with this administration in relieving whole situation. It is not a time when dealers can run their own business as they see fit and cooperation on part of dealers must be given if efforts of this administration are to be successful. Unless advice that you are willing to cooperate is given by four o'clock this afternoon we will arrange to have all coal now in transit diverted to other dealers in your city."

LESS ZINC MINED LAST YEAR THAN IN 1916

**Total Output Estimated at 690,000 Tons as
Compared with 702,610 Tons in 1916.**

The zinc-mining and zinc-smelting industries started the year with every prospect of prosperity, although the price of spelter was below the average of the preceding year. During the last half of the year both the zinc smelters and the zinc miners were claiming that their operations were unprofitable because of the high general prices and the low price of spelter. In consequence a large part of the smelting capacity of the country was idle at the close of the year, and there was a notable curtailment of output during the last quarter.

According to the best information now available, the recoverable zinc content of ore mined in the United States in 1917 was about 690,000 short tons, compared with 702,610 tons in 1916 and 605,915 tons in 1915.

The Joplin district gained nearly 20,000 tons in output. This gain was made during the early part of the year, however, for the increasing cost of operating in the sheet-ground districts and the declining price of concentrates caused practically all those mines to close, and reduced the output of sheet-ground concentrates from a weekly average of 3,000 tons in 1916 to an average of about one-third of that quantity in recent weeks. This loss, which is permanent, involves a net reduction of the zinc resources of the country of over 50,000 tons of recoverable zinc in a year, as well as of lead concentrates containing 15,000 tons of lead.

New Jersey increased its output over 10,000 tons, the upper Mississippi Valley district gained 5,000 tons, and Arkansas made a creditable increase. Montana fell off nearly 25,000 tons, the loss being due largely to the strike in the Butte district. Colorado lost 10,000 tons, Utah 5,000 tons, New Mexico 4,000 tons, Idaho and California 3,000 tons each, and Nevada 2,000 tons. Of the total production, the Eastern States contributed 154,000 tons, or 22 per cent, the Central States 293,000 tons, or 43 per cent, and the Western States 243,000 tons, or 35 per cent. In 1916 the corresponding quotas were, Eastern States, 20 per cent; Central States, 38 per cent; and Western States, 42 per cent.

The following figures have been compiled without change by C. E. Siebenthal, of the United States Geological Survey, Department of the Interior, from reports furnished by all active smelters of zinc ores, showing their output for the first eleven months of the year and their estimated output for December. Figures showing the imports and exports for ten months were obtained from the Bureau of Foreign and Domestic Commerce, and to these figures have been added estimates for the remainder of the year.

SMELTER CAPACITY GREATLY REDUCED

Owing to the depression in the spelter industry and the necessity of curtailing production, two plants in Kansas, one in Chanute, and the other at La Harpe, have been dismantled, and nine more plants in Kansas and Missouri will be dismantled. Twenty zinc smelters were not in operation. The first column in the following table shows the maximum retort capacity by states before any plants were dismantled, and it probably represents the maximum retort capacity in the United States for all time.

ZINC SMELTING CAPACITY, 1917

State.	Maximum number of retorts.	Retorts in operation Dec. 15, 1917.	Idle retorts Dec. 15, 1917.	Retorts under construction.
Illinois.....	47,568	34,232	13,336
Kansas.....	44,054	11,826	29,406
Oklahoma.....	77,899	50,491	27,408
Other States.....	60,090	41,242	18,848	840
Total.....	229,611	137,791	88,998	840

As shown by the table, 88,998 retorts out of 225,637, or 40 per cent, were idle. A number of additions to capacity that were planned early in the year were abandoned. The only retorts now under construction are the block of 840 at the Terre Haute, Ind., plant of the Grasselli Chemical Co. The new smelter of the United Zinc Smelting Corporation, at Moundsville, W. Va., has two blocks of 1,728 retorts completed, but they have not been operated, and no more are under construction. The acid plant, however, is being operated. The smelter and acid plant of the American Zinc and Chemical Co., at Langcloth, Pa., is down indefinitely on account of a strike. The furnaces and kilns are under repair. Three smelters with acid plants in Illinois are operating at half capacity on a hand-to-mouth basis on account of the difficulty of obtaining zinc concentrates due to the freight congestion.

PRODUCTION IS STATIONARY BUT VALUE DROPS GREATLY

The production of spelter from domestic ore in 1917 is estimated at 574,994 short tons, worth, at the average St. Louis spot quotation, about \$102,350,000, and the production from foreign ore at 92,757 tons, a total of 667,751 tons worth \$118,860,000, compared to a total of 667,456 tons in 1916 (563,561 tons of domestic origin, and 104,005 tons of foreign origin), worth \$178,878,000 at the average St. Louis selling price. This indicates practically the same production as in 1916, but a loss of more than \$60,000,000 in value. Included in the output is 28,175 tons of electrolytic spelter, of which a part was refined by electrolysis from prime western spelter. This was the product of five plants. The quantity of zinc dust prepared for market was over 7,000 tons. The output of secondary spelter redistilled at

regular smelters and at the smelters with large retorts was about 21,600 tons.

Primary spelter was produced during the first half of the year at the rate of 722,000 tons a year, during the third quarter at the rate of 626,000 tons a year, and during the fourth quarter at the rate of 600,000 tons a year.

The production of primary spelter from both domestic and foreign ores, apportioned according to the states in which it was smelted, by six-months periods, was as follows:

SPELTER PRODUCTION, 1915-16, BY STATES
[SHORT TONS]

State.	1916		1917	
	First half.	Second half.	First half.	Second half.
Illinois.....	90,082	90,268	95,149	79,668
Kansas.....	74,592	65,924	42,359	33,269
Oklahoma.....	73,298	90,790	109,130	89,389
Other States.....	78,480	95,054	114,500	104,287
	316,452	342,036	361,138	306,613
	658,488		667,751	

IMPORTS OF ZINC ORE REDUCED; EXPORTS OF
SPELTER STATIONARY

The imports of spelter (mostly scrap, probably) are estimated at 270 short tons, valued at about \$25,000, compared with 684 tons in 1916. Zinc dust was imported to the amount of 380 tons, worth \$90,000. The imports of zinc ore in 1917 were approximately 215,000 short tons, containing about 75,600 tons of zinc and worth about \$4,550,000, compared with 385,964 tons of ore, containing 148,147 tons of zinc, in 1916. The imports of zinc ore in the first ten months of 1917 originated as follows:

ZINC ORE IMPORTED INTO UNITED STATES, JANUARY-
OCTOBER, 1917

From	Ore.	Zinc content.	Value.
	Short tons.	Short tons.	
Canada.....	14,554	4,362	\$294,669
Mexico.....	130,090	41,853	2,574,129
Spain.....	14,778	6,083	260,922
Italy.....	5,919	2,411	117,271
French Africa.....	1,246	623	66,346
Australia.....	27,731	12,502	753,598
Total.....	194,318	67,834	4,066,935

Exports of spelter and sheets made from domestic ore are estimated at 144,000 short tons, worth \$37,000,000, compared with 163,137 tons, worth \$51,312,990, in 1916. Exports of spelter made from foreign ore are estimated at 60,000, valued at \$11,900,000, compared with 43,230 tons in 1916. The exports of zinc manufactures fell off to \$400,000 in 1917 from \$572,286 in 1916. The exports of brass are estimated at 169,000 tons, valued at \$104,300,000, compared with 122,466 tons,

worth \$72,683,626, in 1916. Manufactures of brass were exported to the value of about \$134,500,000, compared with \$241,668,081, in 1916. The value of loaded cartridges exported in 1917 was about \$41,000,000, against \$55,103,904, in 1916.

The exports of spelter made from foreign ore, and of spelter and zinc sheets made from domestic ore, are shown in the following table:

EXPORT OF SPELTER AND SHEET ZINC, BY MONTHS,
1916-17, IN SHORT TONS

Month.	1916		1917	
	Domestic.	Foreign.	Domestic.	Foreign.
January.....	10,483	3,531	15,531	2,650
February.....	10,328	3,919	15,549	4,860
March.....	8,171	575	17,408	8,230
April.....	9,133	1,902	12,669	3,248
May.....	8,583	4,811	19,528	9,946
June.....	11,309	5,459	13,095	1,757
July.....	12,709	4,508	8,863	2,240
August.....	18,662	4,232	11,283	758
September.....	19,125	965	8,749	19,625
October.....	19,994	6,110	6,057	2,451
November.....	18,988	4,260		
December.....	15,652	2,958		
	163,137	43,230	128,733	55,765

DOMESTIC CONSUMPTION SLIGHTLY DECREASED;
STOCKS GREATLY INCREASED

The apparent domestic consumption of spelter in 1917 may be computed as follows: The sum of the stock on hand at smelters at the beginning of the year, 17,598 tons, plus the imports, estimated at 270 tons, and the production, 667,751 tons, gives the total available supply—685,619 tons. From this are to be subtracted the exports of domestic spelter and sheets, 144,000 tons, the exports of spelter made from foreign ore, 60,000 tons, and the stock on hand at smelters at the end of the year (to be exact, on December 5), 50,107 tons, or a total of 254,107 tons, leaving a balance of 431,500 tons as the apparent domestic consumption. This calculation takes no account of the stocks of spelter held by dealers or consumers. This shows a decrease of 28,000 tons when compared with the 458,428 tons apparently consumed in 1916. This decrease is partly accounted for by the increase of 15,000 tons in the zinc content of exports of brass. On the other hand, the exports of manufactures of brass decreased nearly one-half. The normal antequar consumption of spelter in the United States was about 300,000 tons.

The stock of spelter on hand at smelters, in transit, or in the hands of agents December 15, 1917, was 50,107 tons, as compared with 17,598 tons in hand or transit January 1, 1917, with 33,147 tons June 30, and with 47,186 September 30.

GREAT DECLINE IN THE PRICE OF SPELTER

The price of spelter at St. Louis started at 9.75 cents a pound, and after receding to 9

cents at the middle of January, rose gradually to 10.75 cents early in March. The price dropped to 8.9 cents late in April, rose gradually to 9.4 cents by the end of May, but in a series of declines, with short recoveries, reached 7.75, near which it closed the year. The average quoted price for the year for prime western spelter at St. Louis was 8.9 cents a pound, as compared with an average sales price for all grades of 13.4 cents a pound in 1916, and an average sales price of 12.4 cents in 1915.

The London official price of spelter started at £50 5s a long ton (10.6 cents a pound), and, roughly paralleling the St. Louis price, rose to £58 10s a long ton (12.4 cents a pound) early in March, declined again late in March, rose two-tenths of a cent early in April while the St. Louis price was dropping a cent a pound, and then, owing to governmental control, settled back to £54 a long-ton (nearly 11.5 cents a pound), at which point the nominal price has since remained. The average London price for the year was £54 2s a long ton (nearly 11.5 cents).

The foregoing St. Louis prices are those of the ordinary commercial grade of spelter. High-grade spelter suitable for cartridge spinning has been so much in demand that it has brought a good premium.

Most spelter is sold for future delivery, and in the preceding years of the war the average price has been considerably lower than the average spot quotations. For the first six months of 1917, however, spelter for future delivery brought within a half-cent of spot spelter, and in the last half of the year commanded a small premium over spot spelter. Taking into consideration the high grade of the spelter sold, the average selling price of spelter must have been above the average quotation for spot spelter, and the total value indicated elsewhere must be somewhat under the real figures.

Chicago to Get Smokeless Coal

The report, apparently widely circulated to the effect that the Fuel Administration contemplates ordering the discontinuance of smokeless coal shipments to Chicago is without foundation. In response to numerous telegrams received protesting against such an order the Fuel Administration sent the following telegram to Chicago coal companies:

"We are not contemplating discontinuance of shipments of smokeless coal to Chicago.

"Please advise source of your information to this effect. The Fuel Administration fully appreciates the importance of rendering every assistance possible in connection with the supply of coal for Chicago requirements."

Most of the mines in the Kanawha and New River coal fields in West Virginia have resumed operation after being put out of commission for several days due to the draining of a pool in the Kanawha River and shutting off power supplied by the Virginia Power Company.

UNCLE SAM IS NOW OPERATING RAILROADS

Improvement in Coal Distribution is Expected as a Result of Unification of Transportation Lines.

Overshadowing other big events of the past month is the taking over of the railways by the Government. The Secretary of the Treasury, Wm. G. McAdoo, was selected by the President to direct the operation of the country's transportation lines. This step is expected to be of greatest immediate aid in the distribution of coal.

A complete statement of the coal needs of the North Atlantic States, particularly New England, has been laid before the Director General of Railways by the Fuel Administration. Fuel Administrator Garfield has impressed upon the railway and shipping authorities the grave necessity for an immediate improvement in transportation conditions in order to relieve the needs of New England.

The Fuel Administration is furnishing full data to the representatives of the Director General as to the sources from which New England coal is moving in order that this coal may be hurried to New England along the shortest possible transportation lines.

A distribution schedule covering the North Atlantic States and eastern Ohio has been worked out by the Fuel Administration. This schedule shows the mining districts from which coal for this consuming territory is being supplied and the transportation lines along which the coal must move from the mines to the distributing centers. This information is expected to enable the railroad lines to take the amount of coal needed as directly as possible from the mines to central distributing points and thence on orders from State Fuel Administrators to the points of consumption.

Under this schedule the Fuel Administration seeks to aid the railroads in eliminating the cross-hauling of coal. Specific coal producing districts in West Virginia and Western Pennsylvania will be set aside to supply the distributing centers in the North Atlantic States.

Fuel Administrator Garfield discussed the transportation conditions as affecting the coal supply of New York, Philadelphia, Baltimore and the New England States at various conferences with Director General of Railways McAdoo.

No Extra Profit for Jobbers

The authorized advance of 35 cents per ton in the price of anthracite coal will not be allowed by the Fuel Administration on coal in the hands of jobbers or retailers when the increase was ordered by the President, effective December 1.

OVER 640,000 TONS OF LEAD MINED

Output for 1917 was 17,000 Tons More Than in 1916—Price at End of Year Unsatisfactory.

The high price of lead in 1916 stimulated activity in lead prospecting and lead mining. Further activity was stimulated by the extraordinary high price of lead in June, 1917, and by the gradual increase in the price of silver, which led to the reopening of silver-lead mines that had been abandoned years ago on account of the low price of silver. During the first half of 1917 the lead industry was therefore very prosperous, although there was a general increase in the cost of both labor and supplies. The great decline in price that set in just before the middle of 1917 continued until the end of the year when the price was lower than at the beginning of the year, but the decline was accompanied by no corresponding decrease in the cost of production, so that the producers complained that lead was selling below its actual cost.

The lead content of ore mined in the United States in 1917 was about 640,000 tons, as compared with 622,967 tons in 1916, a gain of 17,000 tons. The Joplin district gained 8,000 tons, California over 5,000 tons, Idaho 4,000 tons, and Washington and Montana 2,000 tons each. Tennessee, which made an annual output of only a few tons in previous years, reported a production of nearly 3,000 tons. Arizona and Utah lost about 4,000 tons each, and Colorado about 2,000 tons, as compared with 1916. The disseminated lead district of southeast Missouri remains the largest producer of lead, the output for 1917 being practically the same as in 1916.

The Bunker Hill Smelter, at Kellogg, Idaho, was completed and put in operation during the year. The Empire Smelter and Refining Co. rebuilt the old smelter at Deming, N. Mex., and treated ores from April until October, when the plant was destroyed by fire. The Ontario Smelting and Refining Co. is building a soft-lead smelter in the northeastern part of Oklahoma, a few miles southwest of Baxter Springs, Kan. It will be equipped with four Newman automatic hearths, a lead stack, and a bag house.

The following estimates have been compiled without change by C. E. Siebenthal from reports made to the United States Geological Survey, Department of the Interior, from all the lead refineries and soft-lead smelters that were in operation during the year. These reports give the actual production of lead for the first ten or eleven months, and estimates

of the output for the remainder of the year. The statistics of the imports and exports, and of lead remaining in warehouses have been made up from the records of the Bureau of Foreign and Domestic Commerce for ten or eleven months, and from estimates for the remainder of the year.

The production of refined lead, desilverized and soft, from domestic and foreign ores in 1917 is estimated at 599,000 tons, worth, at the average New York price, about \$110,000,000, compared with 571,134 tons, worth \$78,816,000, in 1916, and with 550,055 tons, worth \$51,705,000, in 1915. The figures for 1917 do not include an estimated output of 20,000 tons of antimonial lead, worth about \$4,600,000, compared with 24,038 tons in 1916, and with 23,224 tons in 1915. The production of desilverized lead of domestic origin, exclusive of desilverized soft lead, is estimated at 297,000 tons, against 316,469 tons in 1916, and 301,564 tons in 1915; and that of desilverized lead of foreign origin at 59,000 tons, compared with 18,906 tons in 1916 and 43,029 tons in 1915. The production of soft lead from Mississippi Valley ores is estimated at 243,000 tons, compared with 235,759 tons in 1916 and 205,462 tons in 1915. The total production of desilverized and soft lead from domestic ores was thus about 540,000 tons, valued at \$99,000,000, compared with 552,228 tons, valued at \$76,207,000 in 1916, a loss of about 12,000 tons. The loss of nearly 20,000 tons in domestic desilverized lead was partly offset by a gain of 7,000 tons in domestic soft lead, and much more than made up by a gain of 40,000 tons in desilverized lead of foreign origin.

The final figures for the production of soft lead will show an increase of a few thousand tons over those here given, for the smelters and refiners of argentiferous lead undoubtedly treated some soft lead ore from the Mississippi Valley, which, in their preliminary estimates, is not distinguished from silver-lead ore.

In consequence of the great demand and high price about 5,000 tons of secondary lead and over 4,000 tons of secondary antimonial lead were recovered at the regular smelters.

IMPORTS AND EXPORTS

The imports of lead are estimated at 20,000 short tons of lead in ore, valued at \$2,200,000; 37,000 tons of lead in base bullion, valued at \$5,100,000, and 4,400 tons of refined and old lead, valued at \$650,000, a total of 61,400 tons, valued at approximately \$8,000,000, compared with 35,330 tons in 1916. Of the imports in 1917 about 48,000 tons came from Mexico, against 25,919 tons in 1916.

The lead imported into the United States during the first ten months of 1917, comprising lead in ore, bullion, and pigs, and old

lead, originated as shown in the following table:

LEAD IMPORTED INTO THE UNITED STATES JANUARY TO OCTOBER, 1917, IN SHORT TONS

	From Mexico.	From Canada.	From other countries.	Total.
January.....	2,665	1,762	33	4,460
February.....	964	292	918	2,174
March.....	4,534	1,528	94	6,156
April.....	4,162	515	647	5,324
May.....	5,680	365	198	6,243
June.....	4,502	107	1,344	5,953
July.....	3,653	164	4,381	8,198
August.....	7,509	1	271	7,781
September.....	6,285	80	118	6,483
October.....	2,510	33	386	2,929

The exports of lead of foreign origin smelted or refined in the United States showed considerable increase. They are estimated at 17,000 tons, worth \$3,300,000, against 9,880 tons in 1916, and 38,618 tons in 1915. These figures do not include the lead in foreign lead manufactures exported with benefit of drawback, which amounted to 3,227 tons in the first half of 1917. For the last four years notable quantities of domestic lead have been exported to Europe, and the total for 1917 is estimated at 48,000 short tons, valued at \$8,300,000, compared with 100,565 tons, valued at \$13,508,203, in 1916.

PIG LEAD EXPORTED FROM THE UNITED STATES, JANUARY-OCTOBER, 1917, IN SHORT TONS

Month.	Made from domestic ores.	Made from foreign ores.	Foreign lead used in articles exported with benefit of drawback.
January.....	8,095	641	3,227
February.....	3,030	133	
March.....	3,744	959	
April.....	3,454	2,382	
May.....	4,197	1,209	
June.....	6,621	742	
July.....	3,135	90	
August.....	1,905	89	
September.....	4,346	104	
October.....	2,665	10,520	

LEAD AVAILABLE FOR CONSUMPTION

The quantity of lead available for consumption during 1917 may be estimated as heretofore, by adding to the stock of foreign lead in bonded warehouses at the beginning of the year (12,369 short tons) the imports (about 61,400 tons) and the domestic production (540,000 tons), making an apparent supply of 614,000 tons. From this apparent supply should be subtracted the exports of domestic lead (48,000 tons), the exports of foreign lead (about 17,000 tons), the foreign lead contained in articles exported with benefit of drawback (about 5,000), and the stock of foreign lead in bonded warehouses at the end of the year (assumed to be the same as at the end of October, 16,777 tons), leaving as available for consumption 527,000 tons, compared with 477,384 tons in 1916.

UNPRECEDENTED HIGH PRICES FOR LEAD

At the beginning of 1917 the price of lead in New York was a little over 7.5 cents a pound, but it soon began to rise, reaching 10.5 cents late in February and early in March. The price declined to 9.25 cents early in April, but this decline was followed by a rise that reached 12.25 cents in the middle of June. A sharp decline then set in, and although there was a partial recovery late in July and early in August, the price went down to 5.5 cents in November. From this point the price gradually rose, and at the end of the year lead was selling in New York for about 7 cents a pound.

The official price of lead at London remained fixed at £30 10s a long ton (6.4 cents a pound).

PETROLEUM PRODUCTION BREAKS ALL RECORDS

Output of Country's Oil Wells for 1917 Totaled 341,800,000 Barrels, an Increase of 14 Per Cent.

Preliminary estimates by John D. Northrop, of the United States Geological Survey, Department of the Interior, indicate that the quantity of petroleum produced and marketed in the oil fields of the United States in 1917 reached the record-breaking total of 341,800,000 barrels, a quantity nearly 14 per cent greater than the former record output of 300,767,158 barrels, established in 1916. The production is apportioned among the major fields as follows:

Field.	1916	1917
Appalachian.....	23,009,455	24,600,000
Lima-Indiana.....	3,905,003	3,500,000
Illinois.....	17,714,235	15,900,000
Oklahoma-Kansas.....	115,809,792	147,000,000
Central and North Texas.....	9,303,005	11,000,000
North Louisiana.....	11,821,642	8,700,000
Gulf Coast.....	21,768,096	24,900,000
Rocky Mountain.....	6,476,289	9,200,000
California.....	90,951,936	97,000,000
Other fields.....	7,705
Total.....	300,767,158	341,800,000

The salient features of the industry in 1917 were the record levels reached and firmly maintained by prices of crude oil at the wells and the enormous demand, which absorbed not only the current output of the wells, but necessitated a net draft of about 21,000,000 barrels of oil in storage, principally in California and Illinois. The surface reserve of crude oil in the United States at the end of 1917 is estimated at 153,000,000 barrels.

The principal sources of new production in 1917 were Estill County, Ky., Butler County, Kans., Carter County, Okla., Wichita and Harris Counties, Tex., Converse County, Wyo., and Los Angeles County, Cal.

STRIKES CUT DOWN MONTANA'S SHOWING

State's Mineral Production in 1917 Was \$20,000,000 Under that of 1916, Despite High Price of Metals.

The value of the gold, silver, copper, lead and zinc mined in Montana in 1917, according to the estimate of Victor C. Heikes, of the United States Geological Survey, Department of the Interior, was nearly \$113,000,000, a decrease of more than \$20,000,000 from the value in 1916. There was an increase in the production of lead in the State, but a marked decrease in that of gold, silver, copper and zinc. The mines at Butte and the smelters at Anaconda and Great Falls were idle two months during the year on account of labor strikes. The prices of metals, except zinc, were unusually high. The cost of labor and material was also high.

The gold mined was valued at \$3,371,000, a decrease from the value in 1916, which was \$4,550,494. The decrease in the output of copper ore reduced the output of both the gold and silver. A marked decrease was also recorded in the gold won by dredges at Alder Gulch. There was an increase in gold bullion from the Barnes King properties, especially the Shannon mine, at Marysville. Some bullion came from the new mill of the Bannack Gold Mining Company, at Bannack, in Beaverhead county. There was considerable activity in the Warm Springs district, of Fergus county.

The output of silver decreased from 16,404,366 ounces in 1916 to about 12,788,000 ounces in 1917. In spite of the increased price, the value (\$10,358,000) was nearly \$500,000 less than in 1916. Nearly all the silver is derived from copper ore, the production of which decreased for the year.

The output of copper in 1917 was about 278,000,000 pounds, a decrease of nearly 75,000,000 pounds from that of 1916. The value of the output was about \$81,000,000, against nearly \$87,000,000 in 1916. Practically all the larger copper producers made a smaller output than during former years, especially the Anaconda and North Butte. On the other hand, there was a slight increase from East Butte. In March the Anaconda plants produced over 31,000,000 pounds of copper. Had this rate continued for the year, Montana would have had a largely increased copper output, but the industry was seriously affected by the closing of the mines and plants in July, August, and part of September. Shipments were made from the Tuolumne, Davis Daly, and Bullwhacker mines, and a good output came from the Butte and Duluth leaching plant.

The mine output of lead increased from 13,595,136 pounds in 1916 to about 17,000,000 pounds in 1917. The price of lead evidently stimulated work on many of the lower grade

lead mines. The lead concentrate from lead-zinc ore was less, however, on account of the decrease at the large zinc mines. At Troy, in Lincoln county, the new mill of the Snowstorm Mines Company was producing both lead and zinc concentrates in July, and marketed considerable quantities of both products. The Valley Forge mine, in Lewis and Clark county, shipped much lead ore to Helena for concentration.

The output of recoverable zinc from Montana amounted to about 180,000,000 pounds, against 229,259,075 pounds in 1916. Prices were lower in 1917, but the decrease was also due in part to labor troubles and to a lawsuit between the two main zinc producers of the Butte region. During the first quarter of 1917 the Butte and Superior Mining Company produced over 40,000,000 pounds of gross zinc, but it did not maintain this rate of production throughout the year. The Elm Orlu produced some ore, but considerably less than in 1916. The rest of the output of the State came from the mines of the Anaconda Company, the product of which is leached at Great Falls after being concentrated. Other shipments of zinc were made from the Snowstorm, at Troy, and the North Butte, at Butte.

The dividends for eleven months amounted to over \$23,000,000. The principal dividend payers were the Anaconda, Butte and Superior, North Butte, East Butte, Barnes King, and Butte-Bullwhacker.

UTAH COAL OPERATORS ALLOWED HIGHER PRICES

New prices for coal produced in the Utah fields have been announced. Mining in Utah is conducted under exceedingly difficult conditions, which require a large outlay of capital.

The new Utah prices are: Run of mine, 2.80; prepared sizes, 3.30; slack, 2.50.

The old prices for Utah were: Run of mine, 2.60; prepared sizes, 2.85; slack, 2.35.

The increases allowed are outside of the general increase of 45 cents per ton allowed to mines operating under the so-called Washington labor agreement.

POWDER PRICE DISPUTE WITH MINERS ADJUSTED SATISFACTORILY

The controversy between Ohio operators and miners, over the price miners shall pay for powder has been settled without cessation of work at the mines or curtailment of output. The negotiations between the men and the employers were first begun in Washington at the instance of the United States Fuel Administration. When they failed to reach an agreement at the first meeting, United States Fuel Administrator Garfield called them into a second conference and notified them that the matter in dispute must be settled without interruption of mining operations.

UTAH'S METAL OUTPUT SELLS FOR \$106,000,000

**Year Just Closed Sees All Previous Records
of Production Broken—15,000,000 Tons of
Ore Mined.**

The output of gold, silver, copper, lead and zinc from the mines of Utah in 1917, according to Victor C. Heikes, of the United States Geological Survey, Department of the Interior, had a value of over \$106,000,000, an increase of nearly \$17,000,000 over 1916. This is a record value for the State output, reached largely because of the high prices of silver, copper and lead. There was a decrease in the output of gold, lead and zinc, but the increase in the output of silver and copper and the higher prices greatly increased the total value.

During two months in 1917 two of the large smelting companies placed on their ore shipments an embargo, which affected particularly the smaller shippers. These larger companies limited their shipments to half the quantity called for in their contracts.

On account of the congestion of freight on railroads, it was difficult to get sufficient cars, but in spite of all difficulties about 15,000,000 tons of ore were mined during the year, against 13,920,643 tons in 1916.

The mines at Bingham produced about 14,275,000 tons of ore, an increase over the 12,777,683 tons mined in 1916. A large part of the ore was moved by steam shovels. The porphyry copper ore mined amounted to 13,432,000 tons, an increase over the 11,767,996 tons mined in 1916.

The Tintic district, with more than forty shippers, produced about 413,000 tons of ore, which, however, included considerable oxidized iron ore shipped from the Dragon property to the smelters in the valley as flux. Even after this ore is deducted, however, the output still showed a slight increase over that of 1916, which was 365,949 tons. There were fourteen shippers, and each shipped over 4,000 tons during the year. The largest shipments were made by the Chief Consolidated, Iron Blossom, Centennial Eureka, and Dragon. The Tintic Milling Company treated local ore and produced considerable silver and copper, most of it from base bullion and precipitates shipped from points farther west.

From the Big and Little Cottonwood and American Fork districts nearly 55,000 tons of ore were shipped, a decided increase over the 42,828 tons shipped in 1916. The Cardiff mine, in the Big Cottonwood district, maintained its output of lead, and the Maxfield and Iowa properties made large shipments. The Michigan-Utah, South Hecla, Columbus Rexall, and Emma mines, at Alta, made increased output.

The shipments of ore and concentrate from Park City increased from 81,072 tons in 1916

to about 95,000 tons in 1917. The value of the output of Park City will be nearly \$7,000,000 for 1917, as there was decided increase in the shipments of both silver and lead. The main producers were the Silver King Coalition, Judge Mining and Smelting, Ontario, Silver King Consolidated, Daly West, and Daly Mining Company, each of which shipped more than 4,000 tons.

The shipments of ore and concentrate from Beaver county increased from 57,206 tons to over 70,000 tons. The principal producers in the vicinity of Frisco were the Horn Silver, the Utah Leasing Company, working on copper tailings, and the Caldo Leasing Company, making zinc concentrates from Horn Silver tailings. Part of the Horn Silver milling ore was shipped to Midvale for concentration. The large producers in other districts of Beaver county were the Montreal, Majestic, Monitor, and Copper Ranch.

The shipments of crude ore and milling ore from Tooele county, including those from the Ophir, Stockton, Rush Valley, Clifton, and other smaller districts, amounted to about 141,000 tons, against 124,695 tons in 1916.

In the Rush Valley district large shipments were made from the Bullion Coalition and New Stockton properties.

In the Clifton district, or Deep Creek region, the new railroad was operated, and a considerable quantity of low-grade copper ore was shipped, principally from the Western Utah Copper Company.

In the Ophir district the main producers were the Ophir Hill Consolidated, Ophir Coalition, Hidden Treasure, and Cliff.

The production of gold in Utah decreased from \$3,574,947 in 1916 to about \$3,489,000 in 1917. All the gold, except a very small amount of milled bullion and placer dust, was derived from copper, lead and zinc ores smelted.

The output of silver increased from 13,253,037 ounces in 1916 to about 14,385,000 ounces in 1917, and the value of the output increased nearly \$3,000,000, as the price of silver was unusually high. The Park City region produced more than 3,000,000 ounces of silver, principally from lead ores. Several properties at Bingham, including the Utah Apex and Utah Consolidated, produced less silver, on account of the decrease in the shipments of lead ore.

There was a record output of copper in Utah in 1917, amounting to nearly 245,000,000 pounds, against 240,275,222 pounds in 1916. The increase was only about 2 per cent in quantity, but over \$12,000,000 in value. Of the total output of copper in the State, the Utah Copper Company produced approximately 80 per cent. During May and June this company produced over 19,000,000 pounds of copper per month, but the average for the year was somewhat over 16,000,000 pounds per month. Improvements in progress at the mills will ultimately increase the output of


concentrates and improve the recovery. A large leaching plant to treat oxidized copper ore was completed during the year, and will be ready for regular production in 1918. Other important copper producers of the Bingham district are the Ohio Copper, the Yampa mine, Bingham Mines, United States Mining Company, Utah Consolidated, and Utah Metal and Tunnel Company. In San Juan county a leaching plant was erected at the Big Indian property.

The mine output of lead in Utah decreased from 201,490,075 pounds in 1916 to over 193,000,000 pounds in 1917. The value of the output increased from nearly \$14,000,000 to over \$17,000,000 in 1917, as the average price of lead was approximately 92 cents a pound. There was a distinct increase in the output of the Park City region, especially at the Silver King Coalition, Daly Judge, Silver King Consolidated, and Daly West properties. At Bingham a fire closed the Utah Apex mine for a considerable period, and decreased the shipments of lead ore. The low price of lead toward the end of the year prevented many of the small operators from shipping lead ore.

The output of recoverable zinc decreased from over 29,000,000 pounds in 1916 to about 22,000,000 pounds in 1917, or more than 25 per cent. The value of the output decreased from \$3,962,719 to slightly more than \$2,000,000. There were thirty-three producing properties, the most productive of which were the Daly Judge, Caldo Leasing Company, Utah Apex, United States Mining Company, Midvale Mineral Company, Childers Leasing Company, Scranton, Lake View, Chief Consolidated, and Horn Silver. Most of the product was shipped to Eastern smelters, but part of it was taken to the electrolytic zinc plant at Great Falls, Mont. The Judge Mining and Smelting Company began to produce electrolytic zinc at its plant at Park City in 1916.

Incomplete dividends of Utah mines amounted to nearly \$29,000,000 in 1917, against \$24,376,567 in 1916. These were the Utah Copper, Mammoth, Silver King Consolidated, Utah Consolidated, Judge Mining and Smelting Company, Utah Apex, Eagle and Blue Bell, Iron Blossom, Dragon, Moscow, Chief Consolidated, Utah Metal, Gemini, Daly, Horn Silver, Grand Central, Tintic Standard, Bingham Mines Company, and Utah Leasing Company.

Not to Ask Schools to Close

Fuel Administrator Garfield declared that the Fuel Administration does not contemplate the closing of schools in the northern and central states during January and February. The suggestion that school sessions be suspended as a means of saving coal came to the Fuel Administration from outside sources, but it has not been given favorable consideration. 

GOVERNMENT BUYS 100,000 TONS OF NITRATE FOR USE ON FARMS

David F. Huston, Secretary of Agriculture, made the following statement regarding the purchase of 100,000 tons of Chilean nitrate for fertilizer use by farmers under the provision in the food control act which authorizes the President to procure nitrate of soda for this purpose and to supply it to farmers for cash at cost:

"I have been giving a great deal of thought and attention to the nitrate question. I have been in daily touch with the War Industries Board, which was to purchase and deliver the material at the seaboard, and also with the Shipping Board. Arrangements were completed several weeks ago through the War Industries Board, under the immediate supervision of Mr. Baruch, to purchase approximately 100,000 tons of nitrate of soda in Chile, in accordance with the authorization for such purpose in the food control act. Because of disturbed shipping conditions, it has been impossible until recently definitely to secure facilities for transporting the nitrate in whole or in part. Within the last few days preparations have been completed for the delivery at the seaboard during January of 18,000 tons, and every reasonable assurance has been given that supplies up to the 100,000 tons for the ensuing months will be delivered. Every possible effort will be made to make certain these deliveries, but it should be understood that on account of existing situations circumstances over which there is no control might intervene.

"I cannot state today exactly what the price will be, but it will be approximately \$75 on board cars at the seaboard. Farmers will have to pay freight charges to their local stations, the State fertilizer tag fee, which varies in different States, but will probably not average more than 25 cents a ton, and any other local charges.

"The nitrate secured under the appropriation will be sold only to farmers for their own use during the coming season, and generally not in excess of the amounts used by them heretofore. The department is now arranging machinery for the distribution of the material, and will give full publicity concerning the details of the matter."

Du Ponts Continue to Expand

The paint and wood finishing business of the Bridgeport Wood Finishing Company of Still River, Conn., has been purchased by E. I. du Pont de Nemours & Co.

The purchase of the Bridgeport concern makes that company a part of the Du Pont American Industries with their extensive facilities for the manufacture of many chemical raw materials.

VALUE OF NEVADA'S METALS SHOWS INCREASE

**Despite Marked Decrease in Gold and Silver
Value State's Mineral Production Was Over
\$53,000,000**

The value of the gold, silver, copper, lead and zinc mined in Nevada in 1917 was over \$53,000,000, according to preliminary figures compiled by Victor C. Heikes, of the United States Geological Survey, Department of the Interior. This total represents an increase of over \$3,000,000, in spite of the fact that there was a slight decrease in recoverable zinc and a marked decrease in both gold and silver. There was a fair increase in the output of both copper and lead. The average prices of silver, copper and lead were unusually high in 1917, and this fact had much to do with making the total value greater than that of the previous year.

The gold output of Nevada in 1917 was valued at \$6,852,000, a decrease of about \$2,000,000. This decrease was due in great part to the reduced output of the Goldfield Consolidated Mining Company, which has for years been the main gold producer of the State. The production of the Tonopah district, the ores of which contain considerable gold, was also less. The gold output was valued at about \$1,612,000, against \$1,941,441 in 1916. The main producers were the Tonopah Belmont, Tonopah Mining Company, Jim Butler, Tonopah Extension, and West End. Much gold came from the Elko Prince, the Aurora Consolidated, at Aurora; the Round Mountain placer and quartz properties, the Rochester district, and the mines at Manhattan, where there was renewed activity. At the White Caps mine a large ore body is developed from five levels. The new mill, with roaster, was active during the last part of the year, making a considerable output. The War Eagle, Big Pine, and Union Amalgamated mills were also operated, and a large amount of placer gravel was treated by twelve operators. Bullion production from Seven Troughs district decreased, as did the placer output from the Battle Mountain district of Lander county, but the mills in Eldorado canyon, in Clark county, were unusually active. The National mine, a large producer in the past, was unproductive in 1917. About one-sixth of the gold came from copper ore and lead ore, mainly from copper ore.

The production of silver decreased from 13,837,525 ounces in 1916 to about 11,394,000 ounces in 1917. The price of silver, which averaged about 81 cents an ounce, gave this output a value of \$9,229,000, which is slightly more than the value of the output in 1916. The principal silver producers were the mines at Tonopah, the Nevada Wonder, the Rochester Mines Company, Nevada Packard, Elko Prince, Comstock properties, Yellow Pine, and Nevada Hills. With the improved price,

it was possible to treat low-grade ore, especially at Tonopah, where the silver output decreased to about 7,500,000 ounces from 8,734,726 ounces in 1916. The Tonopah Belmont, Tonopah Mining, and Tonopah Extension each produced more than 1,000,000 ounces of silver, as well as considerable gold. The Mexican mill, at Virginia City, treated custom ore, largely from the Union Consolidated mine, but the bullion output of the district was much less.

The copper production of Nevada increased to nearly 110,000,000 pounds in 1917, an increase of nearly 5,000,000 pounds over that of the previous year. The value of the output increased from \$25,858,736 to about \$32,000,000. The main copper producer, as formerly, was the Nevada Consolidated, at McGill. The company was milling over 300,000 tons of ore a month, and shipped a first-class product. The production from the smelter was somewhat less than in 1916, but the loss was more than compensated for by the operation of the Mason Valley plant, in Lyon county. A large part of the ore treated came from the Bluestone mine. Large quantities of copper ore were shipped to other copper plants, especially from the Yerington district in Lyon county; the Santa Fe and Silver Star districts of Mineral county, and from the Robinson district, in the vicinity of Ely. The Copper Canyon Mining Company, in the Battle Mountain district, made a large output. The Consolidated Copper Mines Company, at Ely, contributed a large quantity of both crude ore and concentrates. The mill was remodeled and improved, and toward the close of the year treated more than 600 tons a day.

The production of lead increased from 25,637,278 pounds in 1916 to over 28,000,000 pounds in 1917. The value of the output increased from \$1,768,972 to about \$2,537,000. The principal lead producing districts are the Pioche, of Lincoln county, particularly the Prince Consolidated mine and the Yellow Pine district of Clark county. The Bullion and Goodsprings Anchor properties, in the Yellow Pine district, increased their output of lead. Considerable ore was mined at the Groom property, in southwestern Lincoln county; at the Hamburg property, near Pioche; at the Union Mines Company, and at properties in the Eureka district of Eureka county.

There was a decrease in the production of recoverable zinc from 32,443,189 pounds in 1916 to about 28,500,000 pounds in 1917. The value of this output decreased considerable from over \$4,000,000 to about \$2,613,000. The Yellow Pine property, in the Yellow Pine district in Clark county, continued to supply the largest quantity of zinc produced by any mine in the State. The Potosi mine, of the Empire Zinc Company, was also a larger producer. Zinc was also produced by the Nevada Zinc Mining Company, in Elko county; Lone Mountain district, in Esmeralda county, and Ely, in White Pine county.

The dividends declared by Nevada mining companies in 1917 amounted to over \$11,000,000. The largest was that of the Nevada Consolidated, which paid over \$8,000,000. Others were the Tonopah Belmont, Tonopah Mining Company, Jim Butler, Yellow Pine, Nevada Hills, Tonopah Extension, Boss, West End, Hamburg, Nevada Wonder, Uvada, Rescue Eula, and Prince Consolidated.

PRODUCTION AT HOMESTAKE MINE SHOWS AN INCREASE

The production of gold from mines in South Dakota in 1917 was \$7,412,000, compared with \$7,460,644 in 1916, and that of silver was 193,000 ounces, compared with 215,206 ounces in 1916. In addition, 88,000 pounds of lead were produced from smelting ores shipped. These are preliminary estimates, reported by Charles W. Henderson, of the United States Geological Survey, Department of the Interior.

The Homestake mine and amalgamation-cyanidation mills were operated continuously throughout the year, with an increased output. The Golden Reward, Mogul, and Trojan mills were operated on both company and custom ore. The Deadwood-Standard cyanidation mill was operated on ore from the Elk Mountain mines during part of the year. The Bismarck, Reliance, and Wasp No. 2 mills were idle. Lead-silver ore was shipped from the Galena district.

Placer mines in Custer, Lawrence, and Pennington counties were not actively worked.

GOVERNOR BOYLE ATTENDS MINING CONFERENCES HERE

Among the strong men of the West who have attended the mining conferences in Washington during the last few weeks was Governor Emmett Derby Boyle, of Nevada. Governor Boyle came to Washington primarily in behalf of the silver miners, and was prominent in the conferences concerning the War Excess Profits Tax Law.

Governor Boyle is a native of the State which has honored him with the chief executiveship. He was born on the old Comstock lode, at Virginia City, July 26, 1879. His father was Col. Edward D. Boyle, manager of various "south end" mines on the Comstock lode for thirty years, and he was also extensively interested in the mines of California and Oregon.

The son early became interested in the work of his father, and attended the Mackay School of Mines at Reno, receiving his final degree of Mining Engineer in 1903. Upon leaving school he joined the staff of the British America Corporation, Rossland, B. C., and from there he went to Mexico, where he was civil engineer and later superintendent for the great Esparanza mine.

Upon the death of his father in 1902, he returned to Virginia City and took up the man-

agement of Comstock lode properties. He was, for five years, general manager of the North Rapidan, at Como, Nev., owned by Col. James Guffey, of Pittsburgh.

Engineer Boyle took up private practice at Reno in 1907, and made a specialty of the technical phases of mining litigation. He designed and constructed the plant of the Pacific Portland Cement Company, at Mound House, Nev. He was appointed State Engineer of Nevada in 1910. He served one year and resigned to continue his private practice as an engineer. He became a member of the Nevada Tax Commission in 1913, serving as the mining member of the group for two years. At the same time he was specializing in economic geology and cement work.

It was in 1914 that Mr. Boyle was persuaded to enter the Democratic primaries for the governorship of Nevada. He was nominated and elected, and took office January 1, 1915. His term expires January 1, 1919.

The Governor has been a contributor on technical subjects to various scientific publications, and has made a thorough study of mine taxation, and has been generally credited with the successful adjustment of the mine tax situation in Nevada.

CRUDE OIL PRODUCTION FALLS OFF IN NOVEMBER

The petroleum summary for November indicates a general, though moderate, decrease in crude oil production that may be regarded as seasonal, except in the north Louisiana and Gulf coast fields, where field operations were below normal in consequence of a strike of oilfield workers called November 1. With regard to crude oil consumption, it indicates demand in excess of current supply in all fields except the Gulf coast, and demand in excess of October requirements so far as Lima-Ind., north Texas and Rocky Mountain oils are concerned, though less than in October for the product of the other fields listed. Stocks were drawn upon in November in all fields (notably in the Oklahoma-Kansas field) except the Gulf coast, where, despite the strike, slight additions to surface reserves were made. The summary was prepared under supervision of J. D. Northrop, of the Geological Survey.

Crude petroleum moved from field sources is shown as follows (the figures refer to November, 1917: October, 1917, and November, 1916, respectively): Appalachian, 2,011,409, 2,147,178, 1,805,250; Lima-Indiana, 279,841, 298,506, 310,396; Illinois, 1,235,761, 1,311,554, 1,453,395; Oklahoma-Kansas, 13,185,505, 13,339,669, 9,668,341; central and north Texas, 986,244, 991,924, 792,560; north Louisiana, 339,836, 226,179, 782,689; Gulf coast, 1,613,538, 1,815,171, 1,460,692; Rocky Mountain, 776,733, 843,697, 628,184.

WASHINGTON'S LEAD OUTPUT**INCREASED OVER 9,000,000 POUNDS**

The value of the gold, silver, copper, lead and zinc mined in Washington in 1917, according to the estimate of C. N. Gerry, of the United States Geological Survey, Department of the Interior, was about \$2,238,000, an increase of 9 per cent over the value in 1916. There was a decrease in the production of gold, silver, copper and zinc, but an increase in that of lead. This increase and the higher prices of metals in 1917 gave the output a value slightly above that of 1916, which was \$2,048,350. Strikes at the Canadian smelters at different times during the year caused a curtailment of shipments from Washington, especially from the Republic and Chewelah districts. The plant at Trail, B. C., which owns and operates several mines at Republic, was idle in December. The Northport Smelting and Refining Company, however, operated a lead plant throughout the year and received much of the siliceous ore from Republic.

The mine production of gold decreased from \$577,655 in 1916 to about \$486,000 in 1917. The Boundary Red Mountain mine, in Whatcom county, was among the principal gold producers. The production of the Republic district, the main gold producer of the State, was seriously affected not only by strikes, which closed the mines, but by labor troubles at the smelters. The output of the district, which was 45,313 tons in 1916, was reduced to about 36,000 tons in 1917. The Lone Pine-Surprise-Pearl property was in 1917, as formerly, the main shipper. The Knob Hill was next, and the Tom Thumb, Quilp, Hope, and San Poil were large contributors. Several properties in the district are being efficiently developed. A new shaft was sunk at the Knob Hill mine, and further depth was gained at the Last Chance and the Lone Pine properties.

The mine output of silver decreased to about 257,000 ounces, or over 23 per cent. The value of the output was about \$208,000. Most of this silver came from copper ore mined in the Chewelah district, and a large part of the remainder from siliceous ores mined in the Republic district. The ore output of both districts was less than in 1916.

The copper output decreased to about 2,000,000 pounds, valued at \$607,000. The output of copper ore and concentrates would have been much greater if the smelters had been able to receive the ore. At the United Copper mine, in the Chewelah district, sinking was in progress below the 1,000-foot level. Several dividends were paid during the year. The shipments of crude ore and concentrates averaged nearly 600 tons a month. The Sunset mine made shipments of copper ore during the first half of the year, and some ore was shipped from the Loon Lake Copper property, in Stevens county. In May a shortage of coke prevented further shipments from the smelter at Trail. Several shipments of copper

ore were made from the High Grade property, at Turk, in southwestern Stevens county.

The lead output increased to over 9,000,000 pounds, valued at about \$824,000, representing an increase of nearly 4,000,000 pounds in quantity and \$450,000 in value. The product came largely from carbonate and sulphide ores mined at the Electric Point property, in the Northport district, Stevens county, which was profitably operated during the year. Other properties in the district having first-class or milling lead ore are the Gladstone, Mineral Belt, Providence, and Iroquois. A few shipments were also made from the Bonanza mine, in the Bossbur district, Stevens county.

There was a marked decrease in the zinc output in 1917, for the Great Western and Last Chance properties ceased operations in 1916. The ore shipped from the Lead Zinc property, at Metaline Falls, however, produced more than a million pounds of spelter. Part of the ore was shipped to Eastern zinc smelters and part was treated in the electrolytic plant at Trail, B. C.

The dividends paid by Washington mines for eleven months of 1917 amounted to \$213,163. The mines making payments were the Electric Point, United Copper, Knob Hill, and Loon Lake mines.

Rail Shipments to Northwest Stop

The voluntary curtailment of all rail shipments of coal to the northwestern states during the next ninety days was proposed in a telegram received December 20, by United States Fuel Administrator Harry A. Garfield from John F. McGee, State Administrator for Minnesota. The suspension of shipments was proposed after conferences held by the Northwestern Administrators with W. H. Groverman in charge of the distribution of coal in the Northwest.

By the exercise of strict economy in the use of coal it is hoped that the northwestern states will be able to get along for the next three months with the supply secured by lake transportation before winter closed navigation on the lakes. The suspension of rail shipments to the northwest is expected to operate to relieve transportation difficulties. In his telegram, State Administrator McGee said:

"After very careful consideration of the entire situation as to bituminous coal, we conclude, in view of the distress of the Middle States, that we can get along for the next 90 days without rail shipments from other States. I am compelling the general use of wood in the northern part of the state. Today the Soo and Great Northern railroads have agreed to furnish a supply of cars to move all wood fuel in wooded part of state. Cutting down all unnecessary use of coal and shutting down street lighting altogether, outside of the large cities between 5.00 p. m. and 6. a. m. will enable us to relieve distressing situation in other States."

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"TAG-YOUR-SHOVEL" DAY EXPECTED TO AID COAL CONSERVATION

The United States Fuel Administration has announced that January 30, next, will be National Tag-Your-Shovel Day. The twenty-one million three hundred fifty thousand school children of the country on that day will perform the patriotic work of tagging the coal shovels in American homes.

Tag-Your-Shovel Day falls on Wednesday, and it is expected that governors, mayors and teachers will unite in arranging for a school holiday—one of the few special national school holidays ever proclaimed. Two great printing plants are now turning out the tags and posters, and it may be taken for granted that all the children everywhere except those who are unfortunate enough to be down with measles or mumps or something, will be on the job January 30, for Uncle Sam.

The tags, on the face, bear this wording: "Save that shoveful of coal a day for Uncle

Sam." On the reverse are these hints on saving coal:

"1. Cover furnaces and pipes with asbestos, or other insulation; also weather strip your windows, or stuff cracks with cotton.

"2. Keep your rooms at 68 degrees (the best heat for health).

"3. Heat only the rooms you use all the time.

"4. Test your ashes by sifting. If you find much good coal, there is something wrong with your heater. See a furnace expert.

"5. Write to the maker of your furnace or stove for practical directions for running economically.

"6. Save gas and electric light as much as possible—this will save coal for the nation."

The Fuel Administration points out that this tag day is different from all other tag days. Instead of asking for cash contributions, the school children will demand that householders save money—save money for food, for war savings stamps, for liberty bonds, and at the same time add to the Government's coal pile.

A million car loads of coal, more than ever was taken out of the ground in this country in a single year, will have been mined and delivered in 1917. Another million car loads were needed, but no human power could make so sudden an increase in production where the bare physical requirements were on so vast a scale. But the necessities of the war cannot wait and the American people must face a typical American problem, meeting and satisfying an unheard of increase in demand for coal with inadequate facilities for creating increased supply.

The school children will not neglect any coal shovels, no matter how humble or how exalted they may be. President Wilson's shovel at the White House will be tagged, as well as the shovels of governors, mayors, millionaires and wage-workers.

In the minds of the Fuel Administration officials and the boys and girls of the schools Tag-Your-Shovel Day will be a serious occasion. Its main purpose is to help supply the machine power to help the man power win the war.

Coal Land Open to Entry

Secretary of the Interior Lane announces the restoration of 238,082 acres of land in the former Fort Berthold Indian Reservation, North Dakota to coal entry. The coal is classified as lignite and is subject to disposition at the minimum prices of \$10 and \$20 per acre, according to its distance from a railroad. The opening of these lands to entry results from their classification by the Geological Survey as coal and the recent enactment of legislation by Congress permitting their disposition.

Hess Honored

Frank L. Hess, a geologist of the U. S. Geological Survey has been made honorary curator of rare metals and rare earths of the National Museum.

OUTPUT OF COLORADO MINES SHOWS DECREASE

Decline in Zinc Production Mainly Responsible for Total Lower Than 1916.

The mine output of gold, silver, copper, lead and zinc in Colorado for eleven months of 1917 and the estimated output for December, according to data compiled by Charles W. Henderson, of the United States Geological Survey, Department of the Interior, amount to about \$16,020,000 in gold, 7,327,000 ounces of silver, 67,500,000 pounds of recoverable lead, 8,700,000 pounds of copper, and 114,000,000 pounds of recoverable zinc, having a total value of nearly \$40,600,000, compared with \$19,153,821 in gold, 7,656,544 ounces of silver, 70,914,087 pounds of lead, 8,624,081 pounds of copper, and 134,285,463 pounds of zinc, having a total value of \$49,200,675 in 1916. This estimate shows a decrease of \$3,133,000 in gold, 330,000 ounces of silver, and 3,400,000 pounds of lead. The production of copper showed a slight increase, but that of zinc showed a decrease of about 20,000,000 pounds. With the increased average prices for silver and lead, there was an increase of \$926,000 for silver and \$1,317,000 for lead. The decrease in the value of zinc was nearly \$8,000,000.

The lead smelters in the State, at Globe, Leadville, Pueblo, Durango, and Salida, were operated about as in 1916, the ore coming from Arizona, Canada, Colorado, Idaho, South Dakota, and other States, and including a large quantity of zinc residues from Kansas and Oklahoma smelters. The flotation plant installed in 1916 at the Durango smelter to remove the zinc from the zinc-lead sulphide ores of the San Juan region continued to be operated during 1917. The copper matting plants at Ouray and Vulcan were idle. The United States Zinc Company's wet concentration mill and zinc smelter at Pueblo were actively operated on zinc ores from Colorado and other Western States. The Western Chemical Company's acid plant and magnetic separation wet concentration mill at Denver and the Empire Zinc Company's 200-ton magnetic separation plant at Canon City were operated steadily, both treating chiefly Leadville lead-zinc sulphide ores. The River Smelting and Refining Company's plant at Florence continued to treat zinc-lead-copper sulphide ores from several counties in Colorado, part of the product being forwarded to this company's electrolytic zinc plant at Keokuk, Iowa. The Western zinc-oxide plant at Leadville was operated steadily on zinc carbonate ores. Copper ore and cyanide precipitates were shipped from Colorado to the smelter at Omaha, Nebr., and some copper and lead ores were shipped to plants in Utah.

As predicted in the six months' review of operations in Colorado, the production from Cripple Creek was less than in 1916, but the

production during the last six months of 1917 was somewhat larger than during the first six months, and the total production of Cripple Creek for the year was \$10,549,000, a decrease of \$1,570,000. During the year the Roosevelt tunnel was continued so as to end at the Portland mine, not at the Golden Cycle-Vindicator mine, as originally intended. A cross-cut was also started toward the Cresson mine. The Portland Company abandoned its plan of using the flotation process in its Independence mill, at Vindicator, and continued to use the cyanide process with considerably increased capacity. The Vindicator Company continued its experiments with the flotation process.

The Golden Cycle cyanidation mill, at Colorado City, and the Portland cyanidation mill, at Colorado Springs and Victor, were operated steadily. The yield from the small cyanide plants of the Cripple Creek district was not so large as usual, and the shipments of smelting ore directly to smelters fell off considerably.

Lake county, chiefly Leadville, but including also the Lackawanna Gulch, Sugar Loaf, St. Kevin, and the Wortman lode districts and the Arkansas river dredge district, produced \$1,203,000 in gold, 2,240,000 ounces of silver, 20,000,000 pounds of lead, 2,177,000 pounds of copper, and 59,500,000 pounds of zinc, having a total value of \$10,700,000, against \$1,720,440 in gold, 2,931,281 ounces of silver, 2,621,675 pounds of copper, 21,719,392 pounds of lead, and 76,785,567 pounds of zinc, having a total value of \$16,082,059, in 1916. Shipments of manganese-iron ore, manganese-silver fluxing ore, lead carbonate, and zinc carbonate ores continued in increasing quantities from the Downtown district, unwatered in 1916. Some zinc carbonate and zinc sulphide ores were shipped from the Fryer Hill district, also unwatered in 1916, and considerable iron-sulphide ores were shipped from the unwatered Carbonate Hill district. The output of zinc carbonate from the Leadville district decreased heavily. The output of zinc carbonate was 68,500 tons of 19.6 per cent, as compared with 85,513 tons of 21.52 per cent in 1916. The zinc sulphide smelting and concentrating ore was 130,000 tons of 21.7 per cent, against 147,295 tons of 20.96 per cent in 1916. The Derry Ranch dredge, below Malta, continued operations during the year.

The San Juan region of Dolores, La Plata, Ouray, San Juan, and San Miguel counties produced \$2,588,000 in gold, 2,556,000 ounces of silver, 20,824,000 pounds of lead, 3,745,000 pounds of copper, and 6,700,000 pounds of zinc, valued in all at \$8,100,000, against \$3,041,275 in gold, 2,224,311 ounces of silver, 16,345,768 pounds of lead, 3,072,199 pounds of copper, and 5,364,209 pounds of zinc, with a total value of \$7,107,294, in 1916. The San Miguel county mills maintained their production of gold, which was about \$2,000,000, and increased their production of silver to over 1,000,000 ounces, but considerable quantities of the ore treated in these mills came from operations in Ouray county along the strike of the

veins. San Juan county produced considerably less gold, but made an appreciable increase in the output of silver and a large increase in the output of lead, copper and zinc. The yield of zinc in Dolores county increased heavily, but the yield of the other metals fell off somewhat. In Ouray county there was naturally a heavy decrease in the output of gold, due to the idleness of the Camp Bird mill, both the mine and mill having been closed down in August, 1916, to await the completion of the low-level adit, which was driven steadily during 1917. This adit is to be 10,700 feet long, and will cut the Camp Bird 450 feet below the present deepest workings and 800 feet below workings of the next most important section.

Boulder, Gilpin and Clear Creek counties produced \$808,000 in gold, 956,000 ounces of silver, 1,240,000 pounds of copper, 6,336,000 pounds of lead, and 3,300,000 pounds of zinc, as compared with \$1,001,489 in gold, 881,518 ounces of silver, 1,243,756 pounds of copper, 5,681,392 pounds of lead, and 2,572,575 pounds of zinc in 1916. Boulder county produced \$50,000 less gold and 12,000 less silver, also less copper and lead. Clear Creek county increased its output of silver, lead, copper and zinc, but decreased considerably its output of gold. The production of gold in Gilpin county fell off approximately \$100,000, but there was an increase in the output of lead, and for the first time in years there was an output of zinc.

In Chaffee county the output of gold, lead, copper and zinc fell off, but the output of silver increased. The output of Pitkin county (Aspen) was 649,000 ounces of silver and 13,633,000 pounds of lead, an increase of 71,000 ounces of silver, but a decrease of nearly 4,000,000 pounds of lead. The output of zinc from this county, however, increased approximately 300,000 pounds.

The production of Creede (Mineral county) fell off considerably, as did that of Gunnison county.

Summit county produced \$623,000 in gold, 157,000 ounces of silver, 620,000 pounds of lead, 30,000 pounds of copper, and 19,000,000 pounds of zinc, as compared with \$673,891 in gold, 120,207 ounces of silver, 14,581 pounds of copper, 1,688,637 pounds of lead, and 13,940,948 pounds of zinc in 1916. The four gold dredges at Breckenridge produced about the same output as in 1916, but the output of pocket gold was not equal to that of 1916. During the later part of the year a new dredge was launched in this district. There was very little activity at Montezuma, but several properties continued to work at Kokomo.

Mining was very active at Red Cliff, Eagle county, though the yield of zinc was somewhat less than in 1916. Some shipments were made from the Brush Creek district.

The output from both lode and placer mines in Park county decreased.

The output from the mines of Custer county was the largest for several years, and there was also a considerably increased production

from the Kerber Creek district of Saguache county.

CARDINAL GIBBONS URGES MINERS TO WORK ON HOLY DAYS

The efforts of the Fuel Administration to secure a maximum output of coal during the Christmas holidays by keeping the mines at work were endorsed in a letter from Cardinal Gibbons. Cardinal Gibbons said:

"In reply to your letter of recent date relative to the coal shortage which exists throughout the country, I am pleased to say that I approve of your suggestion that the miners perform their ordinary tasks upon holy days and holidays until the present crisis is over. It will be of invaluable service to the country and to humanity, if they will work regularly and avoid unnecessary loss of time, for every ton of coal which they place at the disposal of the country's industries, contributes in large measure towards the success of the nation in the titanic struggle upon which we have entered. Towards accomplishing this laudable purpose I would kindly suggest that the public places, selling intoxicating drinks, might cooperate with the efforts of the Government by closing their bars from nine o'clock in the evening until eight o'clock the following morning. This surely would not work any hardship on the patrons, on the contrary it would benefit them and give them more time to spend with their families, while at the same time contribute to their greater efficiency. These are days of sacrifice and I feel confident that our men in the coal regions will not be less generous of their best efforts than any others in the country. Up to the present they have done splendidly and I have no reason to think that they would slow down in the least in their part of national service."

LIGHTLESS NIGHTS ORDERED TO HELP SAVE COAL

The Fuel Administration, in an amended order issued December 14, put into effect "lightless nights" on two nights of each week. These nights are Sunday and Thursday. The first "lightless night" in the United States since electricity began to be used for illumination, was Sunday night, December 16.

Under the new order the "white ways" of all cities disappear absolutely on the nights designated. The burning of lights contrary to the wording and spirit of the order constitutes a violation of law and steps will be taken by the Fuel Administration to mete out punishment to offenders.

Approves Middle West Pooling

Fuel Administrator Harry A. Garfield approves the Coal Shippers Terminal Pool Association establishment of terminal coal pools in the central west to facilitate handling of the coal supply.

IDAHO MINERAL OUTPUT INCREASES OVER \$5,000,000

Lead Production in 1917 Shows Increase Over that of 1916.

The value of the gold, silver, copper, lead and zinc mined in Idaho in 1917, according to the statement of C. N. Gerry, of the United States Geological Survey, Department of the Interior, was about \$54,000,000, an increase of more than \$5,000,000 over the value in 1916. There were decreases in all the five metals except lead, in which there was a slight increase. Idaho was freer from labor troubles than the neighboring States, particularly Montana and Washington. The average prices of silver, copper and lead were unusually good, and every effort was made to ship larger quantities of ore, particularly lead ore. The new lead smelter of the Bunker Hill and Sullivan, near Kellogg, began operations in July, and the lead plant at Northport, Wash., was active during the entire year, treating principally Idaho silver-lead ores. The output of crude ore and concentrate, both lead and zinc, increased from 527,266 tons in 1916 to about 572,000 tons in 1917.

There was a decrease in the gold output from \$1,115,810 in 1916 to about \$715,000 in 1917, due principally to the fact that the large dredge at Idaho City, Boise county, was idle. Shipments of gold bullion were made from the Marshall Lake district of Idaho county, where the Sherman & Corporal property has become a large gold producer. The lead ore produced contains a small amount of gold, and the copper ore, especially that of the Alder Creek district in Custer county and the Richmond mine in Shoshone county, contains considerable gold. A dredge that had been moved from Alaska to Prichard Creek, near Murray, in Shoshone county, was ready for operation in December.

The production of silver was about 11,773,000 ounces, slightly less than that in 1916, when the State produced 12,300,873 ounces. The price, however, was so much better that the value of the output increased from \$3,093,974 to about \$9,536,000. The Coeur d'Alene region contributed most of the silver, and the largest producers were the Hercules, Bunker Hill and Sullivan, Morning, Hecla, Caledonia, Tamarack and Custer, Greenhill-Cleveland, Gold Hunter, Stewart, Consolidated Interstate Callahan, and Last Chance. In Boundary county considerable silver is contained in concentrates shipped from the Idaho Continental property. In Lemhi county also silver is produced from lead ore. Increased output was made by the Morning, Hecla, and Bunker Hill properties.

The mine output of copper decreased from 8,478,281 pounds in 1916 to about 6,753,000 pounds in 1917. The value decreased from \$2,085,657 to about \$1,971,000. The properties at Mackay, in Custer county, and principally

the mine of the Empire Copper Company, contributed most of the copper output. Shipments of copper ore were made from the Richmond mine, where the new tramway to Adair was operated. The Caledonia mine, at Wardner, produces ore containing copper as well as silver and lead. Toward the end of the year the plant of the National Copper Company was again operated, and made shipments of concentrates in November and December. Other shipments were also made from the Horst Powell property, north of Kellogg.

The output of lead increased from 375,081,781 pounds in 1916 to about 383,000,000 pounds in 1917, and the value increased from \$25,883,643 to about \$34,595,000. The principal producers in the Coeur d'Alene region were the Bunker Hill and Sullivan, Hercules, the Federal properties (especially the Morning mine), the Hecla, Greenhill-Cleveland, Caledonia, Success, Gold Hunter, and Consolidated Interstate Callahan. The Jack Waite property became a shipper of lead ore, and the Hypotheek increased its lead output. Having acquired the Frisco mill, the Tamarack and Custer Consolidated made shipments of lead concentrates in the last half of the year. In Lemhi county the Pittsburgh-Idaho, Latest Out, and Gilmore made shipments of lead ore; in Boundary county, the Idaho Continental; at Arco, the Wilbert Mining Company, and near Mackay, the Copper Queen and Homestake. Ore production in Lemhi county was less than in 1916.

As the price of zinc decreased considerably toward the end of the year, the average was only about 9 cents a pound. The State output decreased from \$6,505,219 pounds in 1916 to about 80,000,000 pounds of recoverable zinc in 1917. The value was approximately \$7,336,000. The output of the main producer, the Consolidated Interstate Callahan, decreased about 20 per cent. This mine averaged over 5,000 tons of ore and concentrates per month, part of which was a lead product. Shipments of zinc ore or concentrates were also made from the Morning, Success, Rex, Highland Surprise, Constitution, Greenhill-Cleveland, Frisco, Black Hawk, Marsh, Douglas, Ray Jefferson, and Nabob. Most of the zinc came from Shoshone county, but the North Star mine, near Hailey, in Blaine county, belonging to the Federal Company, became a producer of zinc concentrates during the year. A great part of the zinc product was sent to the electrolytic plant at Great Falls, Mont., and part of the ore, such as that from the Douglas mine, was concentrated after being shipped.

The dividends from Idaho mining for eleven months amounted to nearly \$6,000,000. The principal contributors were the Hecla, Bunker Hill and Sullivan, Caledonia, Hercules, Consolidated Interstate Callahan, Pittsburgh-Idaho, Wilbert, Empire Copper, Big Creek Leasing Company, Douglas, Richmond, Black Hawk Leasing Company, and Tamarack and Custer.

U. S. PLACER MINING LAWS AS APPLIED TO OIL

By HON. JOSEPH W. THOMPSON

Law Examiner of U. S. Bureau of Mines

(Continued from October Issue)

PROOF OF DISCOVERY—PRESUMPTIVE EVIDENCE

It has been sufficiently asserted that proof of profitable or even valuable mineral deposits is not required to establish a discovery sufficient to justify a location. The authorities warrant the proposition that the statute is satisfied when the evidence produces a conclusive presumption of the presence of mineral. The great majority of the adjudicated cases demonstrate that locations have been justified on presumptive proof. In every case it must be admitted there was positive evidence of the presence of some mineral deposit, but in few cases was there positive evidence of a commercially valuable deposit. This, as formerly said, is not required by the statute. Mining locations in countless numbers have been sustained and mineral patents granted, not on positive proof of valuable mineral deposits, but on proof of the presence of some mineral and the additional presumptive evidence that the mineral discovered, taken in connection with the geological formation, the direction of the vein or lode, the presence of other valuable mines in the vicinity and the experience of geologists and miners, together with the locator's willingness to expend money and labor in the development of the property, furnished a sufficient basis for a valid location and to authorize the mineral patent. Mining locations as a rule are validated upon presumptive evidence—the probability of there being a valuable mineral deposit.

Presumptive evidence consists of the proof of "the facts from which, with more or less certainty, according to the experience of mankind of their more or less universal connection, the existence of other facts can be deduced." As otherwise defined, it is the evidence afforded by circumstances from which if unexplained other circumstances or facts may be inferred or presumed. When the conclusion of the existence of a principal fact does not follow necessarily from the facts proven, but is deduced therefrom by probable inference according to the experience of persons taken in connection with the matter to which the principal fact relates, the evidence is said to be presumptive.

Proof of a discovery must be deemed sufficient when the presence of the visualized mineral or oil, taken in connection with the geological formation and the facts and circumstances connected with the particular locality, leads reasonably to the irresistible conclusion that oil exists within a given location. Reasonable probability, and not certainty, of the ex-

istence of workable oil is all that is required by the statute as a discovery.

The logic of the argument approaches the point of certainty when taken in connection with the petroleum statute. Any discovery under this statute is sufficient when it shows that the lands are chiefly valuable for the oil content. The degree of the certainty, or even the probability, of the proof of discovery decreases as the value of the land decreases. To assert, or for a court to hold that the same proof of discovery is necessary in lands that vary greatly in value is to fly in the face of this statute. This statute as it now remains, if it means anything, must mean that the proof of discovery, or of the certainty of the presence of oil may be scaled according to the value of the land. The evidence is only required to show that the lands, presumptively, are chiefly valuable for their oil content. The statute was not intended to make discovery, or the presence of oil in the land giving it the chief value, a question of law. Remedial statutes are usually without teeth. This act was evidently intended to run the whole gamut of varying values of oil lands and to make it correspondingly easy to make oil locations on lands of high and low value. The intent of the statute is that a discovery of oil that would justify an oil location on lands of little or no value would not necessarily justify an oil location on lands of considerable value. The application of the argument in this connection is that a seepage might be an all sufficient discovery in lands without value for any purpose and be entirely insufficient in lands valuable for many purposes.

OIL LOCATIONS—RIGHT TO POSSESSION WITHOUT DISCOVERY

The mining statutes in themselves afford practically no protection to oil prospectors. The petroleum statute enacted to encourage oil production proves a mere pretense. So long as discovery of mineral or oil is made a condition precedent to a valid location, oil prospectors are without relief. The statutes as they still exist were intended to apply to mineral substances that are found on or near the surface. The fact that oil deposits are far underground, requiring the work of weeks and months to reach them eliminate these deposits from the protecting arm of the statute. Physical conflicts, miniature wars, and endless litigation have for a score of years been the inheritance of oil locators on the public lands. Three lines in the petroleum act giving suffi-

cient time for discovery and protecting the location meanwhile would have answered the purpose.

Most of the western mining States by local statute have given locators some stated time in which to make discovery, but the time given is too brief for oil discovery. The courts have intervened to give prospectors some measure of relief. The rule, long established, is that a person making a mining location on public lands is not a trespasser, but is in effect the assignee of the United States so long as he complies with the conditions of the statute.⁸⁸ A placer location made in compliance with the statute operates to exclude the land embraced therein from other appropriation.⁸⁹ The statute gives a locator the right to enjoy the profits of all the surface included within the boundary lines of his claim, and if in possession, no other person has a right to enter and take minerals from the claim.⁹⁰ A person in actual possession of a valid location may maintain that possession and exclude every one from trespassing thereon.⁹¹ Every miner upon the public domain is entitled to hold the place in which he is working against all others having no better right, and the actual possession of the first arrival will be protected to the extent needed to give him room to work and to prevent probable breaches of the peace.⁹² A prospector on the public mineral domain may protect himself in his *pedis possessionis* during the time he is searching for minerals, and such possession is good as a possessory title against all the world, except the Government of the United States.⁹³ The possession of the surface ground of a mining claim is sufficient evidence of title as against any one not showing any higher or better right thereto.⁹⁴ Mineral land or a mining claim is not subject to preemption where it is already in the possession of another.⁹⁵ A locator of a mine prior to the time he is entitled to a patent has a valid possessory title that will be protected by law.⁹⁶

The cases crystalizing this doctrine of possessory right leave hazy the zone of the initiation of the right, and the extent as applied to the ground possessed. Stated concretely the two unsettled propositions are: (1) The time of the beginning or the point of the initiation of the right. (2) The extent of ground to which the possessory right applied. Whether the right began with the mere surface markings, or with the completed location, including discovery, notices and recording was not made clear. Whether the right, as a matter of

space, extended beyond the *possessio pedis*—the working place, or whether it was co-extensive with the surface of the claim was left also indefinite. The frequent use by the court of the terms "mining claim," and "a valid claim," left the inference that the possessory right applied to a claim where all statutory requirements had been complied with. So the frequent use of the term "*possessio pedis*" and "working place," seem to point to the fact that the possessory right was limited to the space essential or necessary for the working of the claim and not to its entire surface. More recently the courts of California and Wyoming and some Federal courts, proceeding on equitable principles have taken the haze out of the zone and left its lines clear and well defined. It is comforting to oil locators to know that this clarification has been made in cases involving oil locations. These courts make it clear that the possessory right may begin with the location of the surface lines or by acts that indicate the extent of the claim and without a discovery of mineral. They make equally clear the proposition that the possessory right extends to the entire surface of the claim. The reason given for the rule is that in case of petroleum lands a discovery can not in most cases be made except by considerable labor and expense, covering a long period of time, in sinking the necessary wells.⁹⁷ A person in the actual possession of a part of a tract of the public land, with or without a valid location, may maintain such possession by an appropriate action against another who, without color of right or title, and acting as a naked intruder or trespasser, attempts to oust and eject him from the ground in controversy.⁹⁸ Lands in the actual occupancy of a locator engaged in exploring it for oil, under an oil placer mining location previously made, is not open to occupation, settlement or selection by another, although the location was not valid as against the United States for want of actual discovery of oil, where the locator in such actual possession was prosecuting the work of exploration with due diligence, and where oil was discovered as a result of such diligent operation. Public lands lawfully occupied by one engaged in making explorations for minerals is not "vacant" within the meaning of the mining statutes.⁹⁹ "The location of mineral ground gives to the locator before discovery, and while he complies with the statutes of the United States and the State and local rules and regulations, a valu-

⁸⁸ *Chapman v. Toy Long*, 5 Federal Cas. 497, 4 Sawyer 28; *United States v. Nelson*, 27 Federal Cas. 86; *Shafer v. Constaun*, 3 Mont. 369, p. 371.

⁸⁹ *Pirn Oil Co.*, In re, 16 L. D. 117, p. 119.

⁹⁰ *Fuller v. Harris*, 29 Federal 814, p. 819.

⁹¹ *Del Monte Mining Co. v. Last Chance Mining Co.*, 171 U. S. 55, p. 83.

⁹² *Hanson v. Craig*, 170 Federal 62, p. 65; *Zollers v. Evans*, 5 Federal 172; *Erhardt v. Boaro*, 8 Federal 692.

⁹³ *Crossman v. Pendery*, 8 Federal 693, p. 694.

⁹⁴ *Carson City Gold Min. Co. v. North Star Min. Co.*, 83 Fed. 658, p. 668; *Campbell v. Rankin*, 99 U. S. 261, p. 264; *Patchan v. Keeley*, 19 Nev. 404, p. 413.

⁹⁵ *Field v. Grey*, 1 Ariz. 404, p. 406.

⁹⁶ *Herron v. Eagle Min. Co.*, 37 Ore. 155, p. 157.

⁹⁷ *Weed v. Snook*, 144 Cal. 439, p. 444.

⁹⁸ *Meydenbauer v. Steven*, 78 Federal 787, p. 794.

⁹⁹ *Cosmos Exploration Co. v. Gray Eagle Oil Co.*, 112 Federal 4, p. 15; *Kern Oil Co. v. Clarke*, 30 L. D. 550, p. 567.

able right of possession against all intruders."⁶⁶ The rule recognized by the courts and applied particularly to oil locations is that discovery need not precede or coexist with the posting of the notice and marking of the boundaries, but discovery may be made subsequently and when made, operates to perfect the location against all the world.⁶⁷ It is settled law that while a locator, who has made his location, is engaged in good faith in prospecting for minerals, and has complied with the law as to the expenditure and is in possession, the land is not open for location by others.⁶⁸ Actual possession of a mining claim is valid as against a mere intruder, or a person having no higher or better right; and a person in possession of a mining location attempting to discover minerals within its limits has a right to protect his claim from the intrusion of others whether they come upon the land for the purpose of prospecting for minerals or otherwise and he may forcibly expel them or he may resort to law to protect his possession. The original possessor can not be ousted by the mere fact that the second claimant has discovered mineral first.⁶⁹ Persons who stake an oil location, put up the usual notices and record the claim, have the right to take actual possession and continue in such possession at least for a reasonable time while diligently at work thereon exploring the ground for the purpose of discovery. The acts of location would indicate not only the extent of surface intended to be appropriated, but the extent of such possession, and the locator will be protected against all forms of forcible, fraudulent, surreptitious or clandestine entries or intrusion by others.⁷⁰ A relocation of an oil claim cannot be made as against an original locator actually in the possession of the land and diligently prosecuting the work for the discovery of oil.⁷¹ A locator who has made a location in good faith has a right as against third persons, which is transferable, to be protected against all forms of forcible, fraudulent, surreptitious or clandestine entry or intrusion upon his possession so long as he remains in possession and with diligence prosecutes his work toward a discovery. But actual possession coupled with diligent prosecution of discovery work is essential to his protection. What the locator has under such circumstances is a right to continue in possession undisturbed by any form of hostile or clandestine entry while he is diligently prosecuting his work to

a discovery.⁷² "If a qualified person peaceably enters upon public lands of the United States for the purpose of discovering oil or other valuable mineral deposits therein and such land is at the time unoccupied and there is at the time no valid mineral location or lawful entry thereon, under the land laws of the United States, such person has a right to continue in possession so long as he continues to occupy the same to the exclusion of others, and diligently and in good faith prosecutes thereon the work of endeavoring to discover such mineral therein."⁷³

POSSESSION FOR PERIOD OF STATUTE OF LIMITATIONS—RIGHT TO PATENT

Section 2332⁷⁴ provides that persons who have held and worked mining claims for a period equal to the time prescribed by the local statutes of limitation for mining claims, shall, on proof of such facts be entitled to a patent in the absence of any adverse claim. The purpose of this section was to loosen the burden of proving the location and transfers of old mining claims where the record title might be lost.⁷⁵ All that is required under this section to establish a possessory title is evidence sufficient to show that the claim was so held and worked for the time prescribed and record proof even if such is in existence is not required.⁷⁶ It is not necessary for an applicant for patent to show the initiation of his right, but proof of possession and continuous working of the claim for a period equal to the local statute of limitations is sufficient.⁷⁷ This section was intended to meet cases where applicants for patent have been in possession of their claims for the period of the statute of limitations, but were unable to make full proof of their right to patent as required by the previous provisions of the law; and to excuse their defects in title the Congress determined that the Land Office should pass over such defects, and give them their patents, provided no one appears to contest the application. The Land Office in the construction of this section has said: "It is believed that the main purpose of section 2332 was to declare that evidence of the holding and working of a mining claim when equal to the time prescribed by the local statute of limitations for mining claims, shall be considered as sufficiently establishing the location of the claim and the applicant's rights

⁶⁶ *Rooney v. Barnette*, 200 Federal 700, p. 710.

⁶⁷ *Miller v. Chrisman*, 140 Cal. 440, p. 447.

⁶⁸ *Weed v. Snook*, 144 Cal. 439, p. 444.

⁶⁹ *Whiting v. Straup*, 17 Wyoming 1, p. 4, 95 Pac. 849, 129 Am. St. 1093.

⁷⁰ *Phillips v. Brill*, 17 Wyoming 26, p. 38, 95 Pac. 856; *Miller v. Chrisman*, 140 Cal. 440, p. 447; *Weed v. Snook*, 144 Cal. 439, p. 443, 77 Pac. 1023; *New England & Coalinga Oil Co. v. Congdon*, 152 Cal. 211, p. 214; *Phillips v. Smith*, 11 Ariz. 309, p. 314; *Feld v. Grey*, 1 Ariz. 404, p. 407; *Wilson v. Triumphant Consol. Coal Min. Co.*, 19 Utah 66, p. 74.

⁷¹ *Merced Oil Mining Co. v. Patterson*, 153 Cal. 624, p. 626, 95 Pac. 90.

⁷² *Borgwardt v. McKittrick Oil Co.*, 164 Cal. 650, p. 658, 130 Pac. 417.

⁷³ *Smith v. Union Oil Co.*, 166 Cal. 217, p. 219.

⁷⁴ United States Revised Statutes.

⁷⁵ *Upton v. Santa Rita Mining Co.*, 14 N. Mex. 96, p. 123; *Belk v. Meagher*, 104 U. S. 279, p. 286; *Blackburn v. Portland Gold Mining Co.*, 175 U. S. 571, p. 587; *Humphreys v. Idaho Gold Mines Dev. Co.*, 21 Idaho 126, p. 140; *Stewart v. Rees*, 21 L. D. 446; *Cain v. Addenda Mining Co.*, 24 L. D. 18, p. 21; *Barklage v. Russell*, 29 L. D. 401, p. 405; *Brady v. Harris*, 29 L. D. 426, p. 432; *Gaffney v. Turner*, 29 L. D. 470, p. 473.

⁷⁶ *Capital No. 5 Placer Mining Claim*, In re, 34 L. D. 462.

⁷⁷ *Hickey v. Anaconda Copper Mining Co.*, 33 Mont. 46, p. 65.

thereunder.⁸⁰ The section was enacted to prevent an applicant from failing to obtain his patent simply for defects in his claim when he had held a long and undisputed possession and no one had opposed him. The Land Office, under such circumstances, was thus authorized to omit some of the strict proof required from an applicant in consideration of there being no opposition to the application.⁸¹ Where the validity of a location had been unchallenged for more than five years and up to the time of the commencement of the action, a federal court held that under such circumstances the certificate of location created a presumption of discovery of mineral and of a valid location.⁸² Where a local statute provided for location certificates to the discoverer of a lode and what should be done by the locator before filing his location certificate and where such a location certificate had been filed and the claim has been of long standing and had been held unchallenged for years and work of more or less importance had been prosecuted at various points on the claim before the controversy, a federal court after stating such facts, said: "If after all this the court should not tell the jury that every reasonable presumption should be indulged in favor of the discovery of a lode by the miner, it is difficult to conceive of a state of facts where such intentment should arise."⁸³ In a case involving the right to a mining claim under this section, the court on the trial instructed the jury to the effect that a person who had not located mineral lands in the mode prescribed by law and according to the custom of miners might acquire a right thereto by holding and working the same for the period required by the statute of limitations and that a patent should issue for the claim in the absence of an adverse claim. The court on appeal confirmed the instruction and stated that where the possession was continued for five years before the adverse right existed, it was equivalent to a location under the law of Congress.⁸⁴ In another case involving the possession of a mining claim under color of title, the court said: "A presumption is indulged that the location was regularly made in the first place, and the party in possession is allowed to remain so long as he shall comply with the conditions on which he holds the estate."⁸⁵ The rule is established that if a plaintiff is unable to prove a valid location in accordance with the mining laws in force, yet if he show actual possession under color of title at the time of another's entry, he may recover in ejectment.⁸⁶

This section is not entirely clear as to the

precise proof necessary in addition to proof of the adverse possession. The words "claims" and "mining claims" are used and the inference might be that by the use of these terms proof of the possession of a mining claim as such would be required, and as there can be no such thing as a mining claim under these statutes without a discovery and a location, that proof of these facts would be essential. This view has been taken by one court only. The Supreme Court of Idaho is the only court that has said or intimated that this section requires in addition to the proof of possession for the statutory period that it is necessary for the applicant "to have made a mineral discovery" and to have performed the annual assessment work, and to have had the boundaries of his claim so marked and indicated so as to afford actual evidence of the extent and boundaries of his claim and possession.⁸⁷ The folly of this view is seen in the purpose of the statute. The required proof as indicated by this holding effectually emasculates the statute. Its very purpose is to dispense with proof of these facts. The section in its requirements in effect begins where location and discovery cease. The well-known rule is that the performance of the annual assessment work is the condition for continued possession; and this section requires proof of this fact as the essential condition on which the adverse possession must rest. Proof of the nature and extent of the possession is required by regulations but departmental regulations can not be in excess of the statutory requirements. Proof of citizenship is required as the persons holding such claims are the persons qualified as prescribed in other sections of the statute.

The cases cited conclusively show that the continued possession and the performance of the annual assessment work implies the performance of the conditions necessary to a valid location and on proof of possession and performance of assessment work a conclusive presumption is created that a valid mining location was initiated. Emphasis is made in at least one case on the fact that a local statute of the state required the making and recording of a location certificate and a valid location including discovery was required before such a certificate could be recorded. But the existence of such a certificate could not necessarily supplement the proof required under this section for the reason that record evidence of a claim, even if it exists, can not be required, nor can the applicant be required to give any reason for not producing it.⁸⁸ That this section applies to oil locations is assumed for the

⁸⁰ *Barklage v. Russell*, 29 L. D. 401, p. 406.

⁸¹ *McCowan v. Maclay*, 16 Mont. 234, p. 241.

⁸² *Cheesman v. Shreeve*, 40 Federal 791, *Vogel v. Waring*, 146 Federal 949, p. 951.

⁸³ *Cheesman v. Hart*, 42 Federal 98, p. 102.

⁸⁴ *Altoona Quick Silver Min. Co. v. Integral Quick Silver Min. Co.*, 114 Cal. 100, p. 105; *Upton v. Santa Rita Mining Co.*, 14 N. Mex. 96, p. 123; *Humphreys v. Idaho Gold Mines Dev. Co.*, 21 Idaho 126, p. 138; *Horst v. Shea*, 23 Mont. 390, p. 397; *Belk v. Meagher*, 104 U. S. 279.

⁸⁵ *Harris v. Equator Min. & Smelting Co.*, 8 Federal 863, p. 866; *Cleary v. Skiffich*, 28 Colo. 362, p. 365; *Upton v. Santa Rita Mining Co.*, 14 N. Mex. 96, p. 123.

⁸⁶ *Lebanon Mining Co. v. Consolidated Republican Mining Co.*, 6 Colo. 371, p. 381.

⁸⁷ *Humphreys v. Idaho Gold Mines Dev. Co.*, 21 Idaho 126, p. 140.

⁸⁸ *Capital No. 5, Placer Mine Claim*, In re, 34 L. D. 462, p. 463.

reason that it embraces both placer and lode locations and an oil location is within the law a placer claim.

The conclusion is that the locator of an oil claim who has held and occupied the same and performed the annual assessment work for the period of time equal to the period of the statute of limitations of the state in which the claim is situated, has not only a complete equitable title, but one to which he is on proof of the fact of his citizenship and of possession and performance of the assessment work for the required time, and of the required expenditure on behalf of the claim, entitled to a patent from the Government.

(To be continued.)

PRICE OF OIL TO BE FIXED, MANY THINK

Recent Advance in Pennsylvania Grade Crude Creates Unfavorable Impression.

That the price of crude oil is to be fixed, despite the large volume of advice to the contrary, is a belief expressed in certain well-informed quarters here. The idea being considered is that a tentative maximum price be fixed which will not exceed prices as of December 1.

It is known that the latest advance in the price of Pennsylvania grade crude oil has created a very unfavorable impression among those charged with safeguarding the Government's and the public's interest. Many are of the opinion that the increase was unnecessary and unjustifiable. The rise amounted to 25 cents per barrel, making the price \$3.75. Some declare that Pennsylvania crude producers are holding their credit balances for \$5 crude. At any rate, the advance is likely to lead to higher prices all along the line. Some fear that it may be the opening wedge to a runaway market.

The principal argument which has been advanced against the fixing of a maximum price of crude oil is that it would tend to discourage prospecting and maximum production. To meet this argument, the opinions of thousands of oil men have been secured and are matters of record. The great majority of them admit that the present price of crude oil is sufficiently high to yield large returns on investment, and as a consequence are amply high to stimulate production. The price is not a limiting factor, it is declared. The difficulties of transportation and the scarcity of supplies and materials are responsible for such limitation as exists either in production or in wild-cattling.

Eventually the price probably will be fixed at a certain margin above the cost of production. As yet the cost of production has not been ascertained with sufficient definiteness to permit of its use as a basis for price

fixing. By taking the prices of December 1, which would antedate the rise in Pennsylvania grade crude, it is believed that no injustice will be done, and a basis will be set which will establish the cost of crude to the refiner. Since 83 per cent of the entire cost of refined oil is represented by the cost of crude oil, it would simplify the regulation of all refinery products.

COAL PRODUCTION IN 1917 WAS 544,142,000 TONS

December Output Lowest Since April, but Year's Showing is 8 Per Cent Better Than 1916.

A preliminary estimate by the Geological Survey places the December production of bituminous coal at 42,050,000 tons, the lowest recorded since April, 1917. On this basis, the entire 1917 production should be approximately 544,142,000 tons, representing an increase over 1916 of 8.3 per cent.

In the five working days of Christmas week the soft-coal mines are estimated to have produced 8,964,000 net tons, an average per working day of 1,793,000 tons. The recovery from the extraordinary depression of mid-December continues, but the rate of production has not yet attained the mark set in November. The increase was effected in spite of continued adverse weather conditions.

Reports from almost every district indicate some improvement over the extraordinary depression of the week of December 15. For the country as a whole losses due to all causes amounted to 31.9 per cent of the full-time capacity, as compared with 42.3 per cent during the preceding week. Improvement was reported in car supply, losses due to that factor declining from 30.8 to 24.8 per cent. Losses attributed to labor shortage and to mine disability returned to normal.

Recovery was most rapid in Illinois, Indiana, and Ohio. In the last mentioned State losses attributed to car shortage fell from 57.1 to 38.8 per cent of full-time output. Western Pennsylvania and the Irwin gas field also reported decided improvement. In central Pennsylvania, however, conditions underwent little change. The Junior Philippi, Winding Gulf, and Fairmont regions of West Virginia, and the southern Appalachian district reported increased losses due to car shortage. From the remaining districts of West Virginia and Kentucky a slight improvement was reported.

The production of Alabama was adversely affected by strikes and labor shortage. Losses due to these causes amounted to 9.1 per cent.

The Southwestern region, Missouri, Kansas, Oklahoma, Arkansas, and the Rocky Mountain fields, Montana, Wyoming, Colorado, and New Mexico also reported substantial recovery from the depression of the week before.

GARFIELD STATES POSITION ON "NON-ESSENTIAL" INDUSTRIES

Dr. H. A. Garfield, United States Fuel Administrator, speaking at the meeting of the chairmen of hundreds of American industries assembled in Washington, said in part:

"The United States Fuel Administration approaches the question before us from its own particular point of view, and yet I hope the Fuel Administration does not in this case, and never will in any other, allow itself to assume the position of choosing between various enterprises in our country, each of which is contributing in its own way to the welfare of the successful prosecution of the war at high tension.

"When the question was first presented to me, however, I took it, Mr. Chairman, that you desired me to speak on the subject of so-called non-essentials. It presented itself to me in this way: There are two ways of saving ourselves in this time of necessity. One is to cut off from the list of hundreds of industries the things which are least essential. The other is to prefer those enterprises which are most essential.

"One may take either end of the program to reason about it, or he may take both ends. From my angle of approach the preferred list consists of enterprises most likely to contribute immediately to the war. Therefore, it is impossible to curtail fuel for them. But that did not appear to answer the question wholly. If the war continues very long we may have to cut off fuel from some enterprises that are less essential to the prosecution of the war.

"A list was made up by different people interested in different ways; and when we began analyzing that list, we did not need to spend more than one evening on it to be sure that any one of the industries if cut off from fuel supply would carry a much further injury to the public than we could well reckon.

"There was one industry in particular which manufactured apparently non-essential things, and it was suggested that we withhold the fuel supply from this. But on investigation it was found that this would injure a vast number of people."

Speaking on the same subject, P. B. Noyes, Chief of the Conservation Division, United States Fuel Administration, said:

"Arbitrary government limitations on industry would necessarily be clumsy and somewhat discriminating, and must, therefore, be employed only as a last resort. How, then, shall we get results? For get them we must, and that quickly.

"I propose to you a plan which already promises results through the voluntary cooperating of leaders in important industries. It consists of the voluntary limitation of the least essential portion of each industry. This plan contemplates an immediate survey by the leaders in each national industry of the relative value to them and to the public of the different articles and lines of merchandise produced; and an organized discontinuance during the war of that portion which can best be spared.

"Enough has already been accomplished in this direction, to show that results commensurate with our necessities can confidently be expected if they will all cooperate.

"In one case over 75 per cent of an important industry has offered curtailment which will save 500,000 tons of coal in 1918 and remove 18,000 cars of merchandise freight from the railway problem.

"Another industry has sent representatives to Washington who have offered a reduction in output which would add over 900,000 tons to our national coal pile.

"The proposed plan means that men representing all of the major part of each industry must come to Washington and offer to discontinue the least essential part of their normal output. Such discontinuance should be made 100 per cent effective by government order. This method of obtaining necessary reductions may be called limitation by agreement.

"There is not today room in the United States for fighting a war like this one and at the same time supporting a business boom. We have neither the men, materials nor equipment for both.

"To maintain a high degree of business activity and at the same time attempt to provide the enormous quantity of materials without which this war would be lost, would overtax the railroads, the mines, and finally the man power of the country. In this situation every one of you would vote to give war necessities the right of way.

"Industry must shrink to whatever extent is necessary to give elbow room, as it were, for winning the war. The great problem before us is how to get this elbow room with the least possible dislocation of non-war industry."

Domestic Consumers Come First

Fuel Administrator Garfield conferred on William K. Prudden, State Administrator for Michigan, authority to close amusement resorts, and industrial plants if such action is necessary to furnish coal for domestic consumers. Mr. Prudden telegraphed Fuel Administrator Garfield, urgently recommending that all non-essential users of coal be closed during the holidays. He pointed out that such action would relieve the coal needs of domestic consumers and would tend to relieve railroad congestion as well.

The United States Fuel Administrator replying to Mr. Prudden said:

"You are hereby authorized to exercise your discretion. If you decide it necessary in order to meet domestic consumers' needs, issue order closing some or all industrial plants, theaters, halls and places of amusement during the holidays."

This action of the United States Fuel Administrator follows the general policy of giving local fuel administrators ample authority to handle local fuel emergencies as they may develop.

LABOR'S INFLUENCE ON THE PRICE OF COPPER

By J. E. CURRY,
Secy., Arizona Chapter, American Mining
Congress

Bisbee, Ariz., Jan. 1.—Information from the East indicates confidence that the War Industries Board will not lower the price of copper. There is some feeling that an advance may be made to 25 cents. In the main, however, opinion seems to be that the price will be left where it is.

It is now known that the Board contemplated reduction to 20 cents. Introduction by this Chapter of the effect that such course would have upon the production of small operators assisted greatly in making the latter an important factor in the consideration of the Board, and in all accounts of the mediations of the Board the small operator is being prominently mentioned.

A new phase has developed in the report of a desire upon the part of the Board to make the price agreement term two months instead of four. Combating this the producers have asked a five months' period. It is considered probable that a compromise will be reached on renewal of the four-month agreement.

There is intimation that labor pressure for increase in wages has a part in the two-month proposal. The Board does not want to increase the price of copper above the present level, but is not yet satisfied, it is said, that it can call for higher wages without advancing the price even above 25 cents. The two-month proposal is looked upon by some as an expedient that will satisfy labor that investigation is being made and that higher wage recommendations will not be long delayed at least in point of discussion.

OIL LAND LEASING BILL PASSES SENATE BY VOTE OF 37 TO 32

The Walsh-Pittman Oil and Coal Land Leasing bill was passed by the Senate January 7 by a vote of 37 to 32. It now goes to the House.

The bill has been pending in the Senate four years. Its passage at this session was made possible by an agreement to eliminate from its provisions the naval oil reserves, which was urged by the Navy Department. A separate bill providing for the operation of these reserves by the Government, the leases of the present claimants being obtained either through condemnation proceedings or by direct purchase, will be introduced as soon as approved by President Wilson.

As finally passed, the bill provides for the general leasing of coal, phosphate, oil, gas, and sodium lands by the Secretary of the Interior, with royalties to be paid to the Government, and for purchase of the lands by lessees under certain conditions.

Niagara Falls Plants Taken Over

Under authority of the President, the electric power produced, imported, and distributed by the Niagara Falls Power Company, the Hydraulic Power Company of Niagara Falls, and the Cliff Electrical Distributing Company has been requisitioned by the Government. This step was taken to assure the adequate supply of electric power for the establishments engaged in war work at Niagara Falls and Buffalo.

No Necessity for Labor Shortage

EDITOR MINING CONGRESS JOURNAL,
Washington, D. C.

A careful study of the labor situation in the bituminous coal fields, and putting into practice the results of this research—convinced me and a number of coal operators who followed my advice—that there is no need to suffer from the much-heralded labor shortage.

First of all, there are at least 25,000 foreign-born, experienced miners, who, way back in 1913 and 1914, when wages in coal mines did not offer a comfortable living, turned to more remunerative occupations, such as manufacture of munitions machine shops, steel mills, etc., and last, but not least, the manufacture of non-essentials.

Once a miner—always a miner. These men—especially since wages in the coal mines have advanced to such dimensions that thrifty miners not only enjoy undreamed of comforts and prosperity, but besides are in a position to lay aside a nice little bank roll for rainy days—naturally are desirous to return to mine work.

EASY TO SECURE MINES

Ninety per cent of the mine workers in the U. S. are foreigners, and 90 per cent of these men depend for their news on the publications printed in their own language. Therefore the operator who gave his mine—and the fact that he could employ 50 or 300 miners—the necessary publicity, had his labor wants filled and is in much better shape than his neighbor who omitted to do so.

Of course, there are mines where certain conditions, such as low wages, poor safety conditions, badly kept old houses, or the extreme thinness of the vein (24 to 35 inches), make it extremely difficult to attract new labor, but even there the situation can be relieved to some extent.

Early in July, I approached Mr. J. D. Morrow, secretary of the National Coal Operators Association, with a plan of publicity, the chief object of which was to instill in the foreign-born miner a sense of patriotism and loyalty towards this, his adopted country, instruct him in his duties as a citizen of the U. S., and, most of all, that by doing his bit by working eight hours a day, six days a week, and helping the cause of democracy to victory, he ultimately is helping his native country to be freed from the yoke and slavery of militarism and autocracy.

Three months later, at the Pittsburgh convention of the National Coal Operators Association, a publicity campaign along these lines was advocated but nothing has been done up to the present date.

FOREIGN-BORN MINERS LOYAL TO THE UNITED STATES

The accusation that Austro-Hungarian, Slavish, Croatian, Polish, etc., miners are listening to German propaganda, which instructs them to produce as little coal as possible, can easily be refuted by looking over the books of almost any coal operator, and it will be seen that men of these nationalities almost invariably lead their fellow miners in the amount of money earned, and thereby naturally in the amount of coal produced.

These men are loyal, and if properly instructed through the publications they read will only be more so.

ANDREW M. SPRINGER.

Pittsburgh, Pa., Dec. 15, 1917,
4 Smithfield Street.

Pool Plan Working Well

The terminal pool plan of handling coal in Ohio and Michigan is working well and good progress is being made in clearing up the congestion in traffic for those states and adjacent territory according to F. C. Baird who came to Washington today to make an official report of conditions.

CURRENT FEDERAL LEGISLATION

WATER POWER ON NAVIGABLE STREAMS

What is familiarly known as the Shields water power bill, S. 1419, passed the Senate December 4, and is now before the House. The Shields bill is practically the same as the measure passed by the Senate during the last Congress, the former bill having been so amended in the House that the Conference Committee failed to agree upon it.

The bill provides primarily for the utilization and development of water power on navigable streams by means of private capital. The aim of the authors is to encourage investment in such improvements. The water power projects are to be constructed by permit from the Secretary of War, and the improvements must be made and maintained in accordance with plans approved by the Government.

In presenting the bill, Senator Shields stated that the prime reasons which have prevented the development of water power energy in the United States are found in the restricted policy of the present statutes.

The permit for such improvement is for fifty years, and it may be extended at the pleasure of the Secretary of War or the property may be taken over by the United States and transferred to another grantee. The charges and rentals imposed are to be expended in the improvement of navigation along the stream or streams in which the dams are constructed. All controversies between the grantee and the Government are made subject to judicial investigation and determination. Preference is given in awarding permits to municipalities or other political subdivisions and public utility companies where the power developed is to be used for municipal or public utility purposes. The fixing of rates is subject to State laws and regulations, except where the power enters into interstate commerce, in which case the Interstate Commerce Commission is given jurisdiction. Plants and improvements are subject to taxation by the States in which they exist.

Provisions against power monopoly or conspiracy in restraint of trade are contained in the bill.

Nothing in the act shall be construed to interfere with the sovereign States over the navigable waters within their boundaries and the property rights they hold in trust for their people, including the right to grant permits for the use of the waters and water power thereof, and to require the payment to the States of such charges and royalties as may be authorized by the constitutions and laws of the respective States.

WATER POWER ON PUBLIC LANDS

Mr. Ferris introduced, December 7, H. R. 7227, a bill to provide for the development of water power on the public lands and lands in relation thereto. This bill refers to the use of public lands abutting streams of water as sites for power plant. The Government holds that the riparian rights adjoining streams which traverse the public lands are subject to the jurisdiction of Congress.

The bill provides for leases under the authority of the Secretary of the Interior for no longer period than fifty years. It provides that the Government may take over the power properties at the expiration of the leases by paying the cost of rights-of-way water rights, used in connection therewith, and the reasonable value of all other property taken over, including structures and fixtures, such reasonable value to be determined by mutual agreement between the Secretary of the Interior and the lessee or by the United States district court in the event of disagreement.

The bill provides that in the case the Government does not extend the lease at the expiration of the fifty years or does not take over the same, the properties of the original lessee may be leased anew upon such terms as the laws then existent may authorize, the new lessee to pay for such investment as the original lessee has made thereon. The Secretary of the Interior is authorized to specify in the lease and to collect charges or rentals where the power is generated in whole or in part on lands belonging to the United States, and the proceeds shall be appropriated as a part of the reclamation fund created by act of Congress approved June 17, 1902, known as the reclamation act. The bill provides for the regulation of rates and the issuance of stocks and bonds under the authority of State commissions, but where any such commission does not exist this authority shall be vested in the Secretary of the Interior, or in such a body as may be authorized by Federal statute until the State shall provide a commission.

The Secretary of the Interior is authorized to examine the books and accounts of lessees and to require them to submit statements. Any lease may be forfeited by appropriate proceedings in the United States district court if the lessee fails to comply with the terms of this act.

OKLAHOMA INDIAN LANDS

The House of Representatives, during the closing days of the December sitting, passed H. R. 195, providing for the sale of coal and asphalt deposits in the segregated mineral land

in the Choctaw and Chickasaw nations, Oklahoma. The Secretary of the Interior is authorized to make appraisals by a board of appraisers consisting of three members to be appointed by the President, one upon the recommendation of the Secretary of the Interior, and the remaining two upon the recommendations, respectively, of the principal chiefs of the Choctaw and Chickasaw nations.

The bill provides for the thorough advertising of the sale, and that 20 per cent of the purchase price shall be paid in cash, the balance in four annual equal payments from the date of sale with 5 per cent interest on deferred payments. In case of forfeiture the Secretary of the Interior shall advertise the lands to be sold to the highest bidder at public auction.

Such deposits on leased lands shall be sold subject to all rights of the lessee, and any person acquiring said deposits shall take the same subject to said rights and acquire same under the express understanding that the Department of the Interior will cancel and withdraw all rules and regulations and relinquish all authority heretofore exercised over the operation of said mines by reason of the Indian ownership of said property.

The lessee shall have the preferential right, if exercised within 90 days after the appraisal, to purchase at the appraised value any or all of the appraised lands lying within such lease held by him, and shall have the preferential right to purchase the coal deposits embraced in any lease held by him by taking same at the highest price offered by any responsible bidder at public auction. If any lessee becomes the purchaser of any coal deposits or any undeveloped lands owned by him, one-half of the advance royalties paid by him shall be credited to the purchase price thereof. The Secretary of the Interior will establish an office at McAlester, Pittsburg County, Okla.

ANNUAL ASSESSMENTS

S. J. Res. 78, providing for the suspension of annual assessment requirements on mining claims during 1917 and 1918, passed both Houses during the latter part of September and went to conference. The Conference Committee changes were accepted, the bill was finally passed and was approved October 5. The bill provides that every claimant of a mining claim in order to obtain the benefit of the resolution shall file for record, in the appropriate place, a notice of his desire to hold his mining claim under this resolution. The resolution does not apply to oil placer locations.

NEW BILLS

Since the opening of Congress to December 18, 1917, 3,307 bills were introduced in the Senate, and 7,993 bills in the House. Late bills, not previously reported, have been introduced as follows:

S. 3233 by Mr. Borah (also introduced in the House as H. R. 7236 by Mr. Smith, of Idaho), seeks to amend the act of May 11, 1898, entitled "An act to permit the use of the right

of way through the public lands for tramroads, canals, and reservoirs, and for other purposes."

The following is the proposed amendment: "That the Secretary of the Interior be, and hereby is, authorized and empowered, under general regulations to be fixed by him, to permit the use by any citizen or association of citizens of the United States, for the purpose of furnishing water for domestic, irrigation, public, and for other beneficial uses, of the right of way through the public lands of the United States for canals and reservoirs to the extent of the ground occupied by the water of such canals or reservoirs, and fifty feet on each side of the marginal limits thereof, and, in addition thereto, at locations to be determined by the Secretary of the Interior, five acres of ground of the unoccupied public lands to be used for the erection thereon of dwellings and outbuildings for the convenience of ditch riders and other employees engaged in the management of said canals and reservoirs."

S. 3220, by Mr. Gronna, seeks to confer upon the Bureau of Mines the authority to investigate lignite coals and to determine the practicability of their utilization as a fuel, and in producing commercial products, such as ammonia, tar, gas, etc. An appropriation of \$100,000 is called for.

S. J. Res. 108, by Senator Shafroth, asks that the President be authorized to appoint a commission of three members to visit Allied and Neutral nations of the world with a view to making an international agreement as to the coinage of silver, subject to approval by Congress. The sum of \$100,000 is proposed as an appropriation. The preamble to the resolution is as follows:

"Whereas the settlement of balances of trade with silver-using countries threatens the depletion of our stock of gold, although such countries prefer that such balances should be paid in silver; and

"Whereas to relieve such condition it is necessary that the production of silver be increased; and

"Whereas the enormous expansion in world credits during the past three years necessitates the enlargement of the base upon which such credits are founded: Therefore be it Resolved, etc."

S. Res. 163, By Senator Lodge, asks that an inquiry be made by the Senate Committee on Manufactures as to the causes of the shortage of sugar and coal.

H. R. 7235, by Mr. Foster, provides that the Bureau of Mines shall recommend the purchasing of fuels by the executive departments, excepting the Navy, examine fuel specifications and the fuel-burning equipment of such departments.

H. J. Res. 172, by Mr. Sabath, aims at the taking over by the United States Government of railways and coal mines during the period of the war. The resolution was introduced December 5, and since that date the management of the railroads has been assumed by the President. The resolution seeks to provide that the Interstate Commerce Commission

shall be empowered to take control of both roads and mines. Regulation of wages is proposed, and the management is to be lodged in the hands of the boards. The ultimate Government ownership of both is contemplated.

H. J. Res. 202, by Mr. Emerson, asks for the appropriation of \$10,000,000 to build freight cars to handle foods and fuel. This subject is likewise covered by the action of the President in taking over the railways.

ALASKA'S MINERAL OUTPUT SLIGHTLY LESS THAN IN 1916

In 1917 Alaska produced minerals valued at \$41,760,000. These are the advance figures issued by the United States Geological Survey, Department of the Interior, and are based on estimates made by G. C. Martin. The value of the mineral output of Alaska in 1917, although about \$6,870,000 less than that in 1916, was greater than that in any other year. The most valuable mineral product in 1917 was copper, of which 88,200,000 pounds, valued at \$24,000,000, was produced. This is less than the output of 1916, which was 119,600,000 pounds, valued at \$29,480,000, but is greater than that of any other year. The reduction is due largely to labor troubles, and is not necessarily permanent. The gold produced in 1917, \$15,450,000, of which \$9,850,000 was derived from placer mines, was also less than that produced in 1916, which was \$17,240,000, and is the smallest since 1904. The reduction was due chiefly to curtailment of operations because of the scarcity of labor and the high cost of materials, but in part to the disaster at the Treadwell mines and the depletion of some of the richer placers.

During the year Alaska also produced silver valued at \$1,050,000, coal valued at \$300,000, lead valued at \$160,000, tin valued at \$160,000, antimony valued at \$40,000, and tungsten, chromium, petroleum, marble, gypsum, graphite, and platinum valued at \$600,000.

During thirty-three years of mining Alaska has produced more than \$391,000,000 in gold, silver, copper, and other minerals. Of this amount \$293,000,000 represents the value of the gold and \$88,200,000 that of the copper.

PRODUCTION IN 1918 EXPECTED TO SET A NEW HIGH RECORD

Coal producers expect the production in 1918 to set another new high record, according to the National Coal Association. They understand that the war needs of the country will require even more coal than has been produced in 1917. They are entering upon the new year with a determination to produce the tonnage required.

The most serious obstacle which they now foresee is a shortage of labor at the mines. The short car supply during the last two or three months has so restricted operations at many mines that thousands of men have sought employment elsewhere where working conditions were more regular.

PERSONALS

George M. White, Consulting Engineer for Arizona Mines Reduction Co., Skull Valley, Ariz., was in Washington, December 13. Mr. White has been making a tour of some of the central and eastern cities. His mine is one of the largest producers of molybdenite in this country.

H. W. Hardinge, Consulting Engineer, 120 Broadway, New York, was in Washington, December 19, to consult with various government officials.

G. W. Tower, Mining Engineer, of New Rochelle, N. Y., spent some time in Washington in December.

Frederick W. Foote, who has recently been operating tungsten mines in Portugal, and who since then has been studying tungsten problems in the United States, was in Washington in December.

J. E. Spun in now making his home at 1751 Park Road, N. W., Washington, D. C.

Wm. Barrett Ridgely has forwarded to the U. S. National Museum a piece of ore weighing about 150 pounds that contains a large percentage of the tungsten sulphide, tungstenite, recently identified simultaneously by R. C. Wells of the U. S. Geological Survey and K. D. Kuhre of Salt Lake City, Utah. The specimen is from the Emma Mine at Alta, in Little Cottonwood Canyon, Utah. The mineral is associated with silver bearing galena, and has so far not been found elsewhere.

H. C. Dudley, of Duluth, Minn., has recently been appointed a captain in the Engineer Officers' Reserve Corps, and has been assigned to the 36th Regiment of Engineers. He is closing his office in the Lonsdale Building, Duluth.

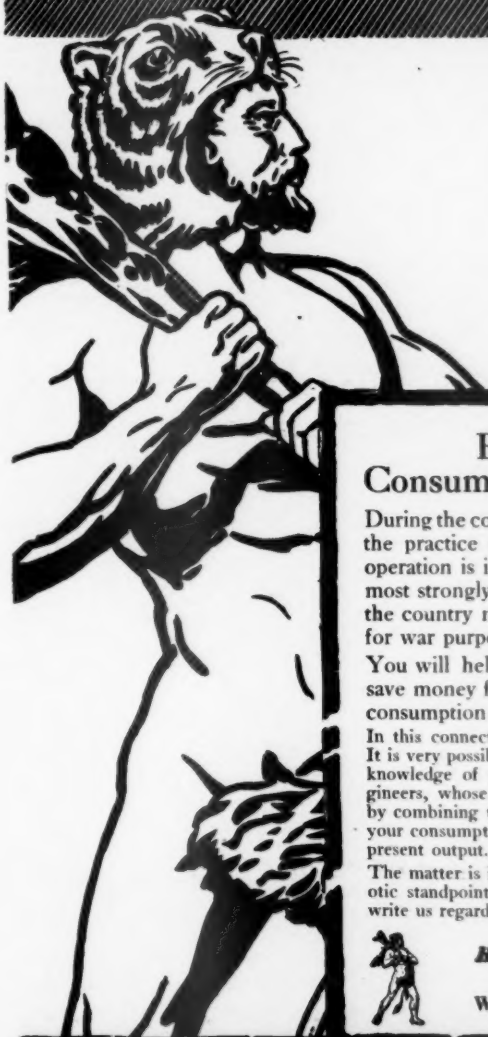
Companies Consolidated

An agreement for consolidation of the Westmoreland Coal Company, the Penn Gas Coal Company and the Manor Gas Coal Company, dated December 4, has been filed. The name of the merged company will be the Westmoreland Coal Company, and its officers will be: President, S. Pemberton Hutchinson; vice-president, George McCall; secretary, Howard R. Yearsley; treasurer, Herman Roll. The company has been recapitalized at \$10,000,000. The Westmoreland Coal Company is a member of the American Mining Congress, and Mr. Hutchinson is one of the hearty supporters of its work.

New Du Pont Book Out

Another Du Pont Products Book has just been issued by E. I. Du Pont de Nemours & Co. and its associates, Du Pont Fabrikoid Co., Du Pont Chemical Works, The Arlington Works and Harrisons, Inc. It lists all the products of the above concerns and describes their uses as well as naming those who use them.

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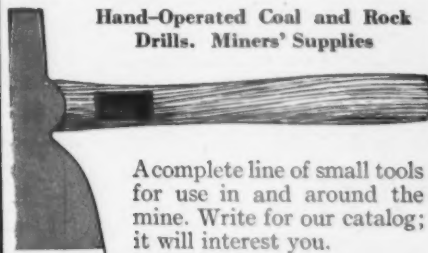
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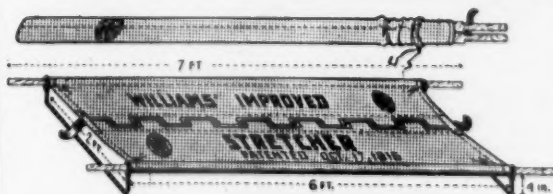
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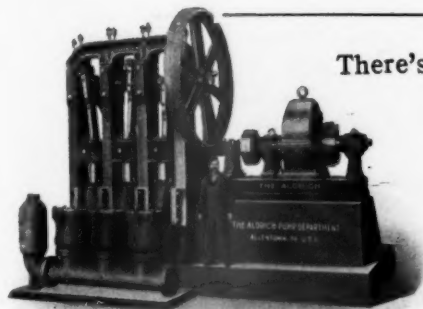
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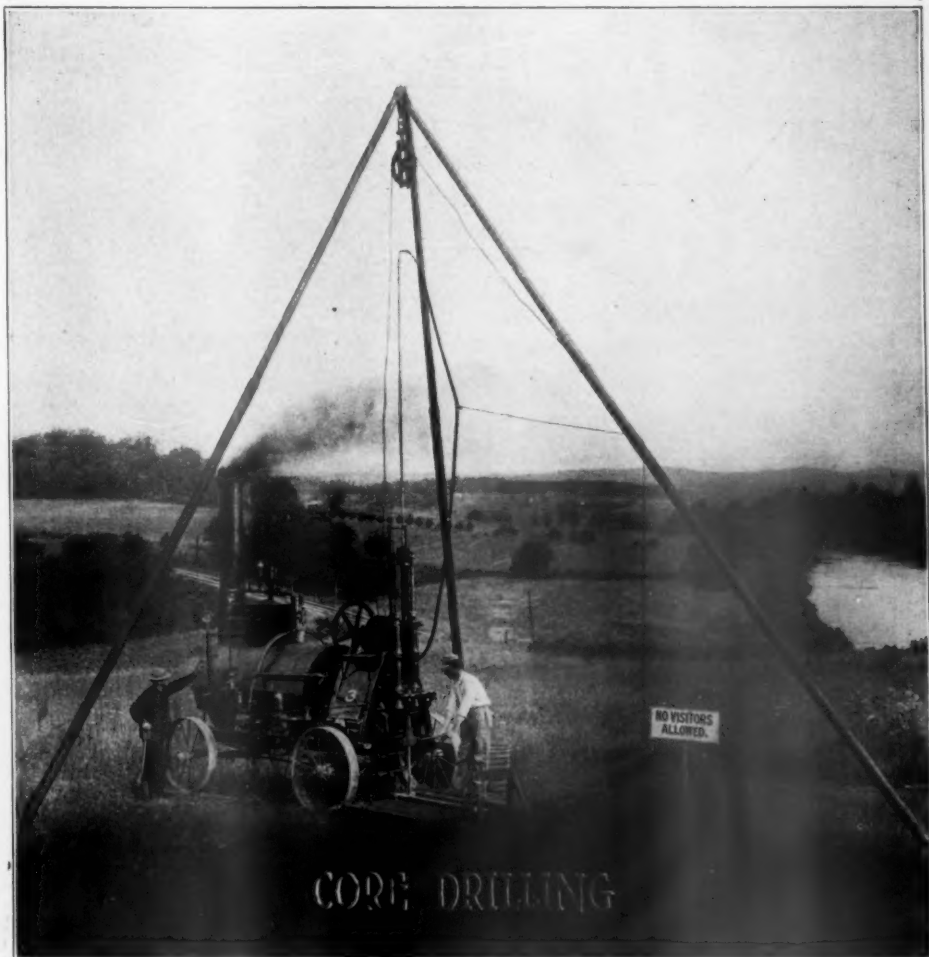
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